



119 West 40th Street, New York, N. Y.

## Contents February 1921

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A feature of this issue is the complete set of plans and specifications for the fine 34-foot raised deck cruiser Nomad. The information given for building the boat is unusually detailed and complete. Each month throughout 1921 an entirely new and original set of plans is to be published.

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CHESTNUT AND JUNIPER STREETS  
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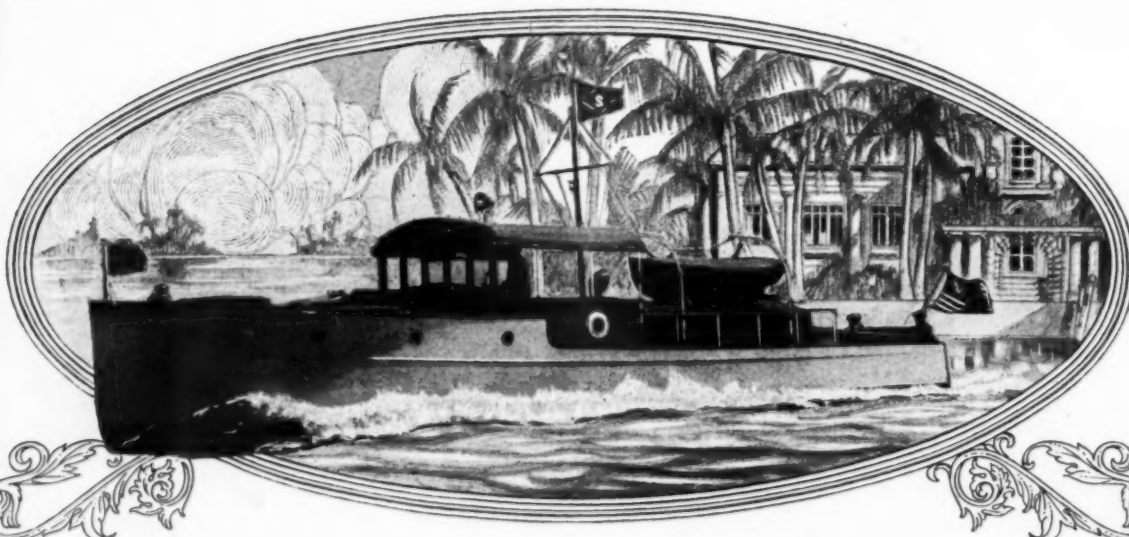
# TROPHIES

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A WELL developed balance in design is an important feature of the 54-foot Standardized Great Lakes Express Cruiser. The perfect sense of proportion is apparent in the distribution of cabin and deck space. Ample cabin room, both in the luxurious owners' stateroom and in the comfortable forward cabin, is obtained without sacrifice of the much used deck space. Day cruising with large parties is made comfortable by the ample room of both bridge and cockpit, while the roomy, luxuriously appointed cabins make extended cruising a real pleasure.

Enjoy to the utmost the beauties of Florida by cruising with every comfort and convenience in the Great Lakes Standardized 54-foot Express Cruiser. Its shallow draft and fast turn of speed adapt this craft admirably to Florida waters.

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*This matter can be discussed with you personally or Catalog No. 328 sent forward.*

**GREAT LAKES BOAT BUILDING CORPORATION**  
**Milwaukee Wisconsin**

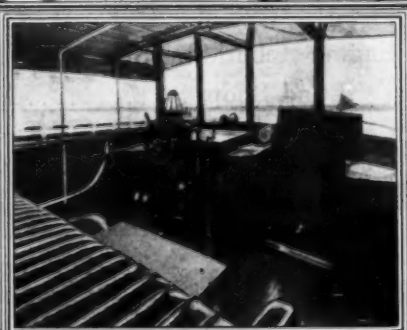
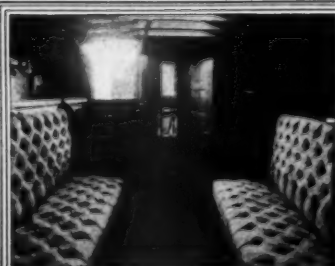
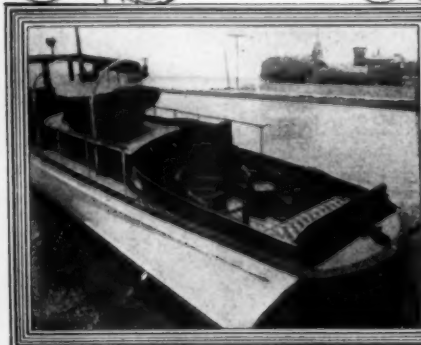
*"The Largest Builders of Express Cruisers in America"*

A large cockpit with comfortable lounging seat and ample room for four yacht chairs makes an ideal place to enjoy day cruising. A companionway leads from the cockpit to the luxurious owner's stateroom with its every convenience.



For those who wish to be "up forward" for day cruising, the large bridge deck with its long, deep upholstered seat makes a comfortable change from the cockpit.

Access to the roomy, comfortable forward cabin is obtained through a companionway from the bridge.





# MOTOR BOATING

119 West Fortieth Street, New York



*When the motor boat is not in use on the St. Lawrence it is kept in a boat-house something like this—there are thousands of them at Alexandria Bay*

## From the Great Lakes to the Sea

A Cruise Along a Route Which Will Not Fail to Thrill  
Even Those Who Believe in Oceanic Cruising Only

*By Alfred F. Loomis*

Photographs by Edwin Levick

EVERY motor boatman before shoving off for that heavenly strand along which St. Peter orders fair wind and tide for all hands should take at least one extended cruise in terrestrial waters to get a foretaste of Paradise. If he has been raised on inland lakes he should reach the sea to feel the heave of it and lick its salt from his lips, and if these ingredients of coastwise seafaring are commonplaces to him he should voyage inland by river and canal to know the satisfaction of tideless waters and fogless mornings.

Having learned a little of oceanic cruising, it was with the expectation of enjoying a new experience that on the

last Saturday in August I put out of Kingston, Ont., for a cruise down the St. Lawrence-Lake Champlain route to New York. Nor was I disappointed in the actuality. Fresh water cruising can no more be compared with a deep water voyage than motoring can be likened to flying, but each is delightful in its way.

My boat was a 26-foot V-bottom runabout without shelter of any kind except the hinged hatches covering the motor and the canvas cockpit cover which protected my blankets and spare clothes from rain and flying spray. Doubtless there are many in the audience who will rise right up to say that such an outfit is totally unsuitable for



*Parking rules have to be made and enforced*

lengthy cruises. There may be others who will interrupt if I venture to say that the motor stood by me when needed and only stopped when I turned the switch. To which imagined objectors I may only say that I like that kind of cruising, and that I try hard to be truthful.

On the first day, fresh from an overhaul which had necessitated its removal from the boat, the engine sputtered and smoked until it had burned the excess oil from its cylinders, and it was an hour or so before I had tuned it up sufficiently to get my expected 17 miles per hour. Then, having gassed and learned that with the advantage of the long Imperial gallon and the depreciation of Canadian exchange, fuel is as cheap (if cheap is ever the word) north of the border as it is south, I stood out into Lake Ontario around the western end of Wolfe Island and laid a circular course for Cape Vincent. Arrived there I spread confusion among the summer inhabitants by appearing at the house of an acquaintance in regulation motor boating regalia of flannel shirt and khaki dungarees. There was a supper party arranged for the evening, and when in one breath I divulged that I had better clothes under canvas and a superlative appetite under my belt I was invited to attend.

That knocked cruising for the day, and as Sunday, with its mid-day meal, was as imminent as Sunday invariably is to Saturday, I postponed my departure till the following afternoon. But that afternoon brought its swimming party and an unimpaired appetite for another home-cooked meal, and what with one thing and several others I was surprised to find myself actually getting under way on Monday. With me from Cape Vincent for the balance of the cruise as far as Watervliet there was a shipmate who took everything as it came, who retained his good nature on rainy, breakfastless mornings, and who remained a friend despite blood relationship. Little less, but not a bit more, could be

expected of the ideal cruising companion.

I signalized the hour of departure by falling overboard for the first time in my life, and with my cousin at the wheel and me and my clothes draped separately on the coaming of the engine compartment, we headed down the St. Lawrence. The cruise, being actually a business trip, entailed stopping at every port to elicit information from the natives. As a consequence, our days' runs were limited to mileages of 40 or 50 and the ship's log could have been made a complete list of towns along the inland waterways. Having served an apprenticeship at log-keeping in the Navy, however, I had a proper idea of

the relative value of maritime events, and when the cruise ended the excellent log sheets which MoToR Boating publishes for its more discerning readers contained just two entries—Left Kingston, and Arrived New York, with the correct date and the approximate state of the weather on each occasion.

But my memory tells me that we stopped the first day at Clayton, N. Y., Gananoque, Ont., Alexandria Bay, and at numerous wharves and summer resorts intervening. At every stop as well as en route we saw high-speed mahogany craft of the type that mine once was, but it was not until we reached the bay that we saw river motor boating at its perfection. Among the islands of the continent's finest inland boating resort the stranger stands amazed at the beauty and speed of the local craft and devotes a degree or two of admiration to the superb skill with which they are handled.

Perhaps I thought too intently of the other fellow's seamanship and too carelessly of my own, for when a little



*The Thousand Islands it is, and every one of them has from one to a dozen landings and harbors for motor boats*



Only by motor boat can you get around—the automobile must be left at home

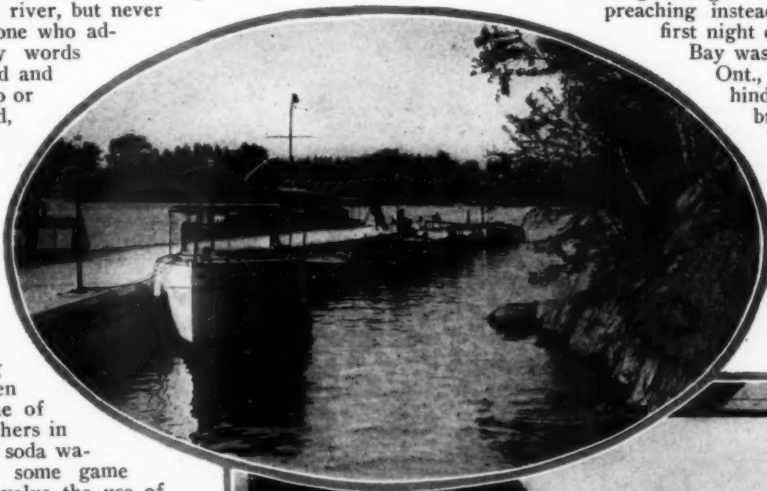
before dusk we headed out of the bay and down the river for Brockville my eyes were off the course for a moment and we leap-frogged over a rock just off the channel. I admit it honestly but blushing—we took the ground. This is a mishap which so far as my personal knowledge is concerned has never before occurred in the annals of motor boating. I have learned by hearsay of careless navigators who lightly touched bottom on a rising tide in an uncharted river, but never have I talked with one who admitted in so many words that he had grounded and been obliged to pump or swim. We pumped, and presently a good Samaritan came up and towed us ignominiously back to the bay. The kindly dusk hid our shame from the guests of the T. I. House, but the night would have proved our undoing if we hadn't been lucky in finding one of the Hutchinson brothers in the back room of a soda water parlor playing some game which seemed to involve the use of playing cards and U. S. currency. He was in the middle of a winning streak and I claim that it was downright nobility that prompted him to quit the game, accompany me back to his yard, and haul us out before the incoming water had got the better of the pump. After sleeping aboard that night, suspended several feet above the water, we spent the better part of the next day straightening a bent propeller and recaulking a sprung shaft log; and then we put distance between us and the Thousand Islands.

Beyond a slightly increased vibration along its shaft the boat suffered no damage from its almost fatal grounding, but the motor took the sudden shock as an excuse for acting up. At speed it missed intermittently in one or more of its six cylinders, and until the third from the last day of the cruise it successfully de-

fied our efforts to ferret out the trouble. On successive occasions we removed all of the exhaust valves and had them tested for truth on lathes, we cleaned the distributor brush and contacts of the magneto, removed, dismantled, and examined the carburetor, and removed a fuel tank to rid it of a slight accumulation of water blown in by the pressure system. Still a cylinder or so missed at anything above 14 miles, and we had come to the end of our mechanical ingenuity. Finally a plug went completely out of commission and was replaced with a new one of the extra long type. When the cylinder in which we had placed the new plug missed as exasperatingly as before I commenced to have a hunch, and while we were under way transferred the new plug to a cylinder that had never before missed. Whereupon the erstwhile irreproachable cylinder missed fitfully and I knew beyond doubt that the fault lay in the length of the spark plug.

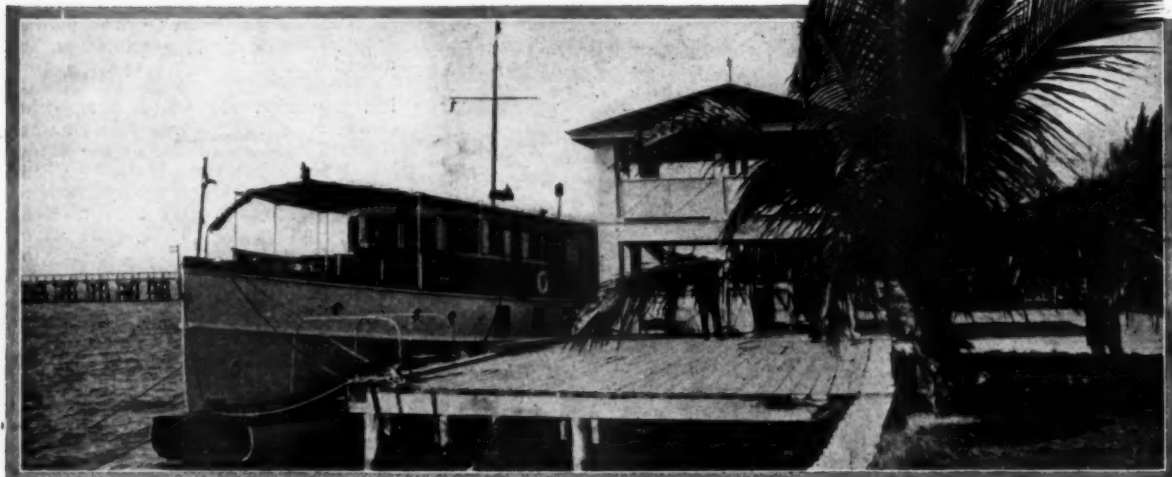
This experience taught me to use the type of plug intended for any given motor. I had previously figured that if a plug extended well into the firing area it must give better combustion than a short plug, and in various engines I had used as long a plug as the valve lift would allow. Apparently in this instance the long plug extended into a pocket or area directly above the inlet valve, which was incompletely scavenged and so retarded or prevented combustion of the incoming charge. But I find myself preaching instead of relating. The

first night out from Alexandria Bay was spent in Brockville, Ont., where we found behind a long curving breakwater a sheltered basin and a boat-house into which we floated our craft. A convenience of this sort, being practically unknown along the seaboard where the tidal range restricts (Cont. on page 98)



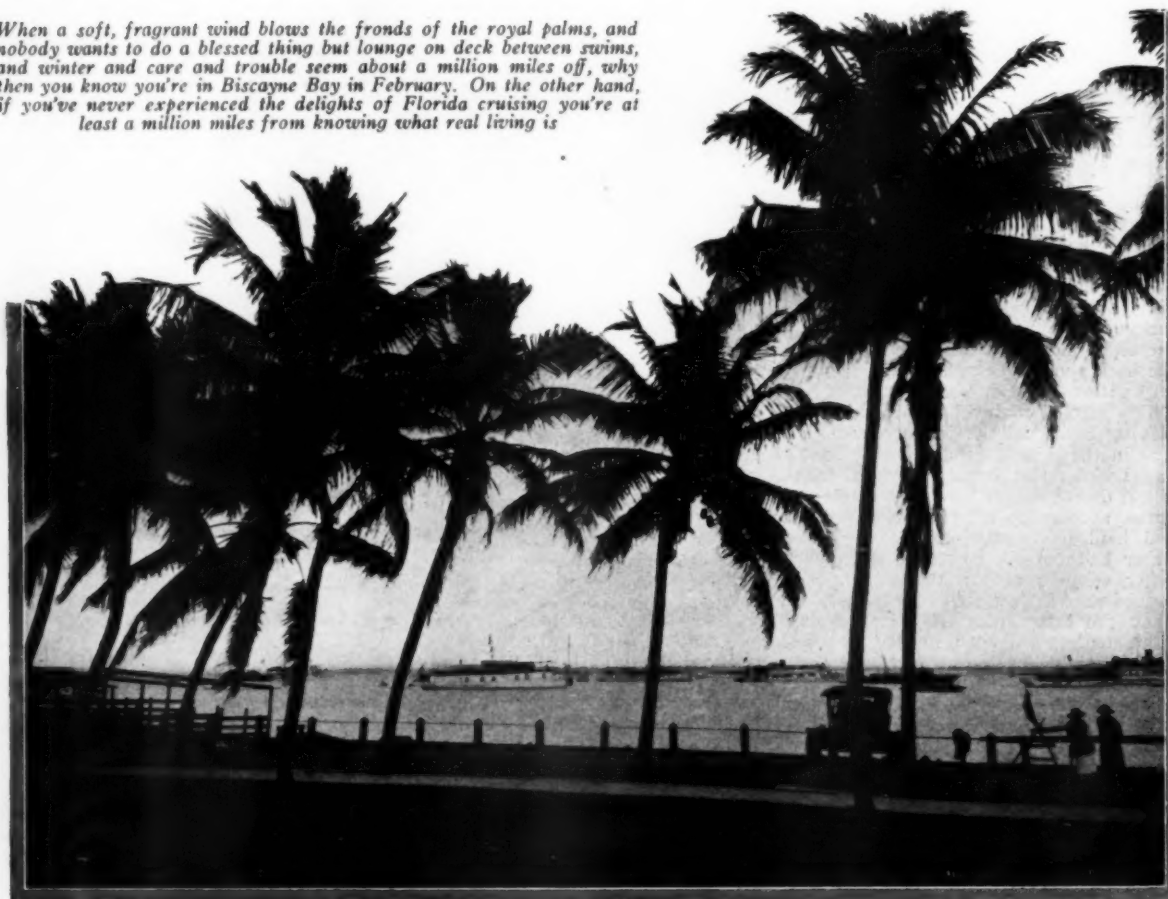
Can you imagine a greater thrill than sailing through almost endless passages like the above?

## Where Life in February is Really Worth Living



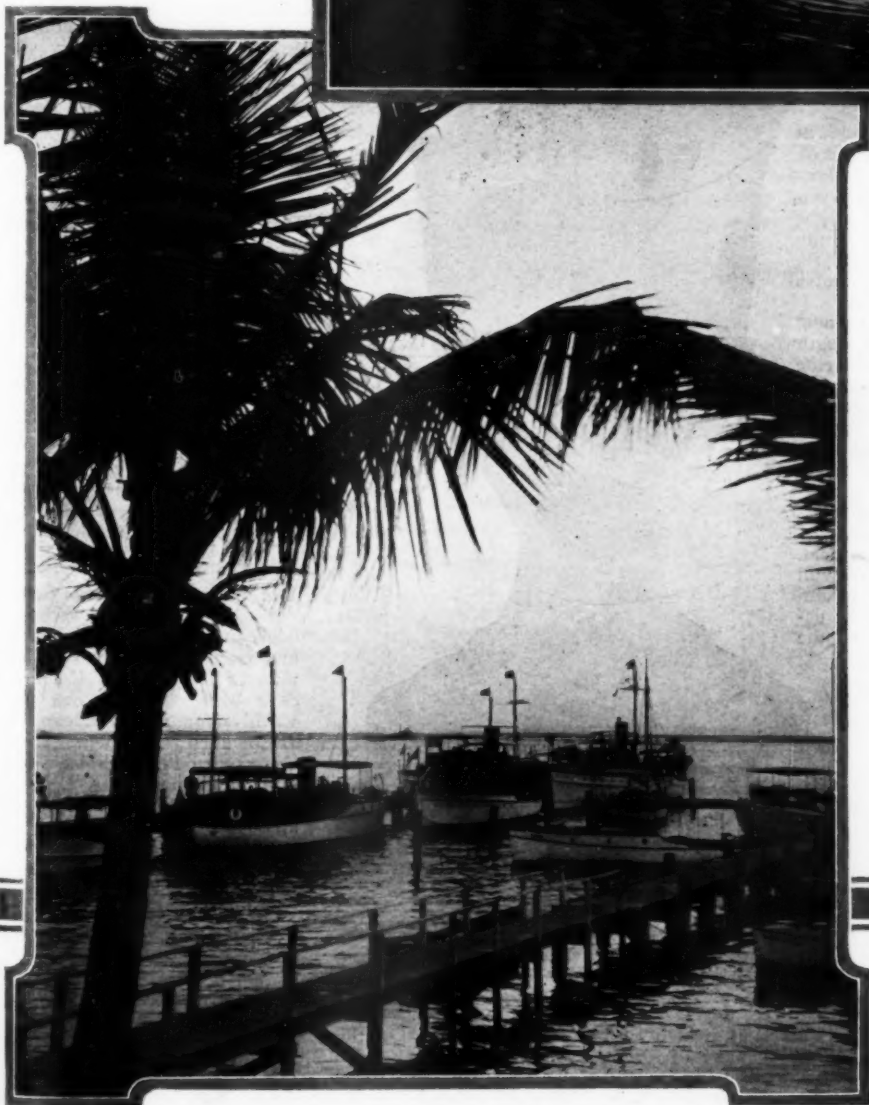
*Who among MoToR BOATING's readers wouldn't exchange a cellarful of coal for a winter of uninterrupted sunshine; and who among us ice-bound unfortunates wouldn't sacrifice his immortal soul for the privilege of stepping from wharf to bridge and saying, "Shove off, Captain, and hit 20 knots; the heat ashore is getting the better of me"*

*When a soft, fragrant wind blows the fronds of the royal palms, and nobody wants to do a blessed thing but lounge on deck between swims, and winter and care and trouble seem about a million miles off, why then you know you're in Biscayne Bay in February. On the other hand, if you've never experienced the delights of Florida cruising you're at least a million miles from knowing what real living is*





Every fall at hauling-out time a spirit of mutiny spreads through the motor boat fleet, and the most rebellious, or affluent, or devil-may-care owners declare that they'll go south before they'll take their craft out of water for the winter. So in houseboats, cruisers, auxiliaries, and runabouts these fortunate gentlemen seek the Florida cruising grounds, and there they mingle with the heaven-blessed mortals who never felt a zero temperature. They're there now and photographs of their boats are sent back to the frozen north to make us stay-at-homes green with envy



If a law directed toward the suppression of cruelty to motor boat men were enacted, we should be obliged to censor the accompanying photograph before submitting it to our readers' attention. Instead of the palm we should present an evergreen covered with snow; for the rippling water the artist would be obliged to sketch in a sheet of ice; and for the motor yachts, lying snug and warm at the landing stage we should substitute a whaling expedition in winter quarters under the shadow of the north pole. The caption would read, "Who wants to be a mariner?" and nobody after looking at the picture would have the inclination to mortgage home and motor car and take the first steamer for Florida

# Records Likely to be Broken at Florida Races

Arrangements Now Completed for Races for Fisher Trophy, Representing American Power-Boat Association Displacement Boat Championship of America at Miami, February 10, 11 and 12, 1921

**P**LANs are well underway for the winter races for the Carl G. Fisher Trophy representing the displacement boat championship of America, which will be held at Miami, Florida, on February 10, 11 and 12. The outlook at this time indicates that there will be at least five starters.

Rainbow, owned by H. B. Greening of Hamilton, Ontario, the boat which won the first leg on this solid gold \$5,000 trophy last summer at Detroit, Mich., will defend her championship title at Miami. Rainbow, which is powered with one 250-h.p. Sterling motor has been considerably improved since her remarkable performance on the Detroit river last August, when she completed the first race of 150 miles for the Fisher Trophy without repairs or adjustments of any kind.

This winter's races at Miami will be similar in length to those held at Detroit last summer. The course will be 2 miles to the lap and three 50-mile heats will be run. The striking feature of these races will be that no postponements of any kind will be allowed. Furthermore the Deed of Gift stipulates that no repairs to engine or hulls will be permitted between races. After a boat has finished a heat of 50 miles she is turned over to the Race Committee and she is not returned to the owner until 15 minutes before the start of the next race.

The race is open to displacement boats of not less than 32 feet in length and powered with one or more marine engines. The Deed of Gift is so drawn that only real boats can compete, in other words freak boats and strictly racing shells are barred. A boat must show a speed of 35 m.p.h. or better before she is allowed to start.

The course for the first two heats will be laid out in Miami Bay, two miles to the lap, fifty miles to the heat. For the third day's race the course will be laid out in the open ocean off Miami Beach. Thus it will be able to be determined whether the boat is of the wholesome and seaworthy type of runabout which the race is supposed to develop.

The trophy which was presented by Carl G. Fisher to the American Power Boat Association a year ago was first raced for at Detroit last summer. Rainbow, the winner, completed the three fifty-mile heats at a speed of 36.7 miles an hour. By improvements which have been made to hull and power plant it is expected that her speed at the Miami races will be at least 40 m.p.h.

Racing against Rainbow will be Miss Miami, a new 37-foot runabout owned by Mr. Fisher. This boat, which was designed and built by the Purdy Boat Company of Trenton, Mich., is powered with a 400-h.p. Allison motor and will be a dangerous contender for the championship title.

Webb Jay of Miami and Chicago has had a new Hacker boat built for him especially for this race. Adieu, is this

new boat's name and she is a 32-footer powered with a 200-h.p. Hall Scott motor. A speed of better than 40 m.p.h. is claimed for this boat. The fourth entry is Tarpon of Albany, N. Y. This boat is a 33-footer powered with 250 h.p. and is designed and built according to entirely new principles. In her trials Tarpon did remarkably well and showed a rate of speed never before attained in a runabout.

The boat, which will possibly create the greatest amount of attention and interest is not yet formally entered, but if present plans do not miscarry this boat will be at the startling line. It was not decided until recently that this type of boat would be eligible but the committee had assurances at the Motor Boat Show held in New York in December, that if they would allow such a boat to enter, the building of one would immediately start. The Race Committee agreed to accept the entry and at this moment the boat is well along toward completion. A special train will be used to take her to Miami if necessary in order to get her there in time for the first race.

The committee in charge of the winter races at Miami will include practically all of the important motor boat racing men of the country. C. F. Chapman, editor of *MoToR BOATING* and Secretary of the Racing Commission of the American Power-Boat Association, has been appointed chairman. Associated with him on the Race Committee will be Rex W. Wadman of New York, one of the leading motor boat advertising men of the country, also Com. Charles W. Kotcher of Miami and Detroit, who has been on the Gold Cup and other important race committees for many years. Sheldon Clark, vice-president of the Sinclair Refining Company of Chicago, Ill., the leading racing man of the Middle West, will also serve on the Race Committee.

Commodore A. I. McLeod of Miami and Detroit will act as chairman of the judges. Commodore McLeod is known the world over as the Dean of freshwater yachtsmen. With the Commodore will be associated Commodore O. J. Mulford of Detroit, J. A. Allison and Huston Wyeth of Miami.

Commodore A. A. Schantz, the man responsible for starting motor boat racing in Detroit, will act as chairman of the judges of the course. Commodore Schantz's work in Detroit has resulted in the Gold Cup having been won by that city four times during the

past five years. On this Committee is Guy W. Vaughn, vice-president of the Van Blerck Motor Co.; F. D. Lawley, the boat builder of Boston; F. G. Ericson of Toronto, W. C. Morehead, President of the Great Lakes Boat Building Corp. of Milwaukee, Wis.; J. L. Hacker of Detroit

(Continued on page 106)



The Carl G. Fisher Trophy for the Displacement Boat Championship of America. This trophy, made by Caldwell & Co., is of solid gold and will be competed for at Miami this month

# Study Seamanship, Piloting and Small Boat Handling With Us During the Winter

## Practice Them When Your Boat Is In Commission

**A Correspondence Course to Be Conducted by MoTor BoatinG Which Will Be of Great Value to Every Motor Boat Owner. Open to All Without Charge**

*Here are our plans for the Correspondence Course. All you have to do is to read the following and if you believe the plan will be of benefit to you then enroll by sending in your name to the Editor of MoTor BoatinG*

**I**N each issue of MoTor BoatinG for the next twelve or fifteen months we will publish an article on some important phase or branch of motor boat handling. For example, the first month's article, or Lesson No. 1, is on the Rules of the Road, Rights of Way and the Proper Whistle Signals to Sound.

At the end of each article or lesson we will print a number of questions directly pertaining to the text matter of the previous lesson. These will be practical questions in every sense, and there will be no attempt at catch questions, or to cover situations which you would not encounter with your own boat.

Those persons enrolled in MoTor BoatinG's Navigation Course will, after studying the published lesson, write out their answers to the questions as published and forward them to us within thirty days.

We will appoint an Examination Committee, consisting of three prominent and practical boatmen, to whom we will turn over the answers received each month. This committee will pass on the merits of the answers received, and give each a grade mark. We will inform those enrolled each month as to their mark, and give any suggestions that may be requested.

After the publication of the last article or lesson, those who have submitted answers to each lesson and have received a mark of 80 per cent or better will be entitled to a MoTor BoatinG Pilot's Certificate, suitable for framing, signed by the members of the Examination Committee and the Editor of MoTor BoatinG, certifying that the one in whose name the Pilot's Certificate is issued has pursued the MoTor BoatinG course in Seamanship, Piloting and Small Boat Handling, and by applying the knowledge gained is capable of handling a motor craft on the coastwise and inland waters of the United States.

All that is necessary is for you to enroll by sending your name at once to the Editor of MoTor BoatinG. No charge now or later.

We, of course, realize that one cannot make sailors or navigators by books alone. We also realize that it will be very easy for persons to crib when writing out their answers to the questions. But we do believe that everyone who is interested enough to enroll will get some good out of the course—we know that many will get a great deal out of it. Many will realize for the first time how much more fun and enjoyment is to be had out of their boats by a more intimate knowledge of the points we will take up in the articles. Others will get a new angle on some branch of the sport that had never occurred to them before. Even if through information which is given in any lesson only one accident is prevented, we will consider that the course has been worth while.

Therefore, if you are with us for a better handling of motor craft, show your co-operation by enrolling now and receiving a MoTor BoatinG Pilot's Certificate later.

### Lesson No.

1. Rules of the Road, Rights of Way, Proper Whistle Signals, Duty When Underway, Day and Night Sailing.
2. Types and Classes of Motor Boats and other Power and Sailing Vessels, Lights for All Classes of Vessels.
3. Navigation and Government Lights, Lighthouses, Lightships, Range Lights and their Characteristics and Classification, Aids to Navigation, Distress Signals by Day and Night, U. S. Coast Guard Signals, Wind and Weather Signals, Fog Signals for Various Types of Boats, Day Marks for Vessels.
4. Buoys of Various Types. Colors and Numbers, Uses and Meaning. Can, Nun, Spar, Bell, Whistling, Lighted and Combination Buoys. Starboard and Port hand Buoys, Channel, Obstruction, Anchorage and Turning Buoys.
5. Equipment Required by Law for various Types of Boats, International, Inland, Pilot and Motor Boat Rules and Regulations, Government Publications, the Light and Buoy Lists, Tide Tables, Coast Pilots, Notice to Mariners.
6. The Compass.
7. Variation, Deviation, Magnetic and True Courses,

### Lesson No.

8. Compass Errors and their Application, Various Methods of Determining Compass Errors, Leeway.
8. The Chart, Various Kinds of Charts, Where to Obtain Them, Their Use, Various Markings on Charts, etc.
9. Nautical Instruments, the Log and Lead Line, Sounding Machines, Pelorus, Azimuth, Protractor, Parallel Rules, etc.
10. Piloting and Chart Work, Laying Courses, Determining Position by Various Methods, Allowing for Tides and Current, Danger Angles.
11. Small Motor Boat Handling, Steering, Engine Room Signals, Action of Propeller, Action of Winds and Current, Shallow Water Indications, Tide Rips, Head, Beam and Following Sea, Picking up Mooring, Making Landings at a Float and Wharf, the Dinghy, Landing in a Surf, Navigation in Fog, Crowded Waters, Anchoring, Docking, Practical Aids in Boat Handling.
12. Cruising, Proper Equipment to Carry, Keeping a Log, Sun and Clock Time, Duties of Various Members of Crew.
13. Flags and Colors, Yachting Etiquette, Signalling.



# Rules of the Road Made Easy

## MoToR BoatinG's Navigation Course—Lesson No. 1

By Charles F. Chapman

See pages 15 to 19, 37, 66, 72, 104 and 106

**I**N the way of introduction to this series of articles on small boat handling, seamanship and navigation as far as it is applied to small craft, it might be well to state again that there is only one way for one to learn how to handle his boat correctly and that way is by practice alone. No amount of printed matter or any articles which we might print could accomplish this. However, it is a fact that a knowledge of the basic principles which compose successful handling goes a long way, especially in conjunction with a goodly amount of experience.

Perfection cannot be obtained unless the motor boatman becomes familiar with his duties upon the water. He must practice them. He should practice them upon every occasion whether his neighbor does or not. It should be remembered as the first principle to learn, that the man at the wheel while he is on watch has but one duty in life and that is the safe guidance of his ship. Everything else should be absolutely out of his mind until his boat is brought to her destination or the command is turned over to another person.

### WHEN RULES OF ROAD APPLY

See Figs. 1 and 7

The rules of the road are applicable to all types of vessels when underway. The term vessel includes every form of floating craft. A boat is underway when she is not at anchor, aground or made fast to the shore. Therefore the rules of the road apply with equal force whether a boat has headway or sternway. They apply to craft which are adrift or not under control. They apply to boats driven by steam, motor or sail power, ferry boats, pilot boats, tugs and tows, sailing vessels and, to some extent, to a vessel propelled by hand power and the current.

The rules of the road which govern traffic on the water much in the same way as traffic on land is controlled, are made and enforced by the Federal Government. The fundamental object of these rules is to prevent collisions at sea or on the water. Therefore, it may be assumed that the rules of the road are applicable only when danger of collision exists. Danger of collision may be deemed to exist also when there is uncertainty or doubt from any cause.

### DUTIES OF PRIVILEGED AND BURDENED VESSELS

See Fig. 13

In the eyes of the rules of the road, that is the laws to prevent collision between two vessels, one of the two vessels must necessarily be considered to have the right of way. This vessel is called the privileged vessel. The other, which is the vessel which must give way, is known as the burdened vessel. In all of the rules, no matter to what phase of boating they refer, the privileged vessel must

*This is Lesson No. 1 of MoToR BoatinG's Correspondence Course, an announcement of which appears on page 13. This month's lesson is on the Rules of the Road, Rights of Way, Proper Whistle Signals to Give Under Various Conditions, etc., etc. A study of the five following pages will give one an idea of the practical way we are to conduct the course. To become enrolled in MoToR BoatinG's Correspondence Course all you have to do is to send your name to the Editor of MoToR BoatinG. There will be no fees of any kind.*

*In the next issue of MoToR BoatinG we will print a number of questions pertaining to the subject of Lesson No. 1. Those enrolled will then write out their answers and forward them to us within 30 days (March 30 for Lesson No. 1). The answers will be passed on by the Examination Committee. After the completion of the course, those who have passed with a mark of 80 per cent or better will receive a MoToR BoatinG's Pilot Certificate, suitable for framing, signed by the members of the Examination Committee and the Editor of MoToR BoatinG.*

*If you want to learn or are in favor of a more intelligent handling of motor craft show your co-operation by enrolling. If you have any suggestions to offer do not fail to write us.*

*In March MoToR BoatinG, Lesson No. 2 will be published in addition to the questions on Lesson No. 1.*

hold her course and speed. The burdened vessel must adopt every means known to keep out of the way of the privileged vessel.

### WHEN A DEPARTURE FROM RULES IS ALLOWABLE

As the rules of the road are written to prevent collision rather than to cause it, it follows that situations might develop of such a nature that, if the rules were complied with, a collision would be inevitable. This has led Congress to adopt the following rules to prevent collisions, which become effective when special circumstances warrant:

"In obeying and construing these rules, due regard shall be had to all dangers of navigation and collision and to any special circumstances which may render a departure from the rules necessary in order to avoid immediate danger." Also the

following rule: "When, in consequence of thick weather or other causes, the vessel which has the right of way finds herself so close that a collision cannot be avoided by the action of the giving way vessel alone, she also shall take such action as will best aid to avert collision."

By the above two rules to a more or less degree, the responsibility for an accident is up to the masters of both boats. If for any reason an accident cannot be prevented by one of two boats, namely the boat which is supposed to give way, then the other boat must do all in her power to prevent a collision. In the case of motor boats which are, or at least should be able to stop within their own length as well as to maneuver readily, there is little to relieve them of some of the responsibility for an accident, especially when a commercial or vessel of large size is the other party to the situation.

The Golden Rule of small boat handling is safety first and keep to the right. Indecision of action or those having an obscure motive may mislead the other vessel and confusion may result. Time should never be considered wasted if safety is at stake. When there are alternate methods of avoiding danger, the safer of the two should be selected.

### RULES PROHIBIT EXCESSIVE SPEED

The rules of the road make very little specific mention of speed, except when navigating in the fog or heavy weather, when the rules state speed should be reduced to the safety limit. However, good seamanship as well as good ethics require that the speed of a boat be reasonable for the time, place and surrounding conditions. Court rulings have upheld these statements even though the laws are silent on these points. Excessive speed is a fundamental fault which may cause collision or accident. A speed reasonable in open waters, free from traffic, would be considered an unreasonable speed in crowded waters, harbors, narrow channels and particularly where yachts and motor boats are anchored. Excessive speed in the vicinity

(Continued on page 66)

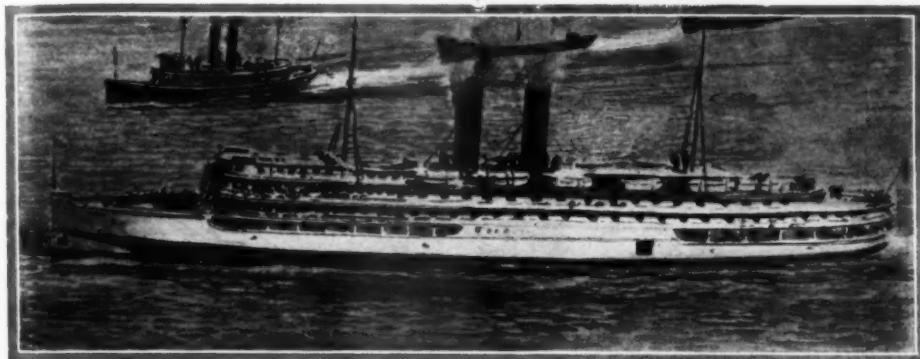


# Proper Navigation Explained Pictorially

Hints on Motor Boat Handling, the Proper Whistle Signals to Blow and What to Do in an Emergency

MoToR BOATING'S CORRESPONDENCE COURSE—LESSON NO. 1

See pages 14, 37, 66, 72, 104 and 106



Drawings by A. E. Snyder

Fig. 1. Ordinarily in a situation like the above, if both boats were of the same speed, a boat in the position of the tug and tow would have the right of way because she has the other craft on her port side. However, in this particular case, the speed of the large steamer shown in the foreground will probably be so much greater than that of the tug and tow that she would be able to cross the bow of the tug without either boat having to change its course. In such a case, it will be permissible for the large steamer to act in this way because no danger of collision exists and it is only when danger of collision does exist that one boat has the right of way over another. The tug and its tow are to be considered one vessel and are regulated by the same rules which govern motor and steam vessels without tows. A tug and its tow have no special rights over any other motor vessel.



Fig. 2. A ferry boat upon leaving her slip must sound one long blast of her whistle. This is not a passing signal but must be construed as a danger or warning signal to indicate that the ferry boat is about to enter traffic. A ferry boat under no circumstances is permitted to sound passing whistle signals or exercise any rights of way until she is entirely free and clear of the ferry slip. Other boats have no right to block or prevent entrance to and exit from her slip or pier.



Fig. 3. In case of collision or other serious accident between vessels, it is the duty of the person in charge of each vessel to stand by the other vessel until he has ascertained that she is in no need of further assistance. He must render to the other vessel, her master, crew and passengers such assistance as may be practical and necessary so far as he can do so without danger to his own vessel. He must also give the name of his own vessel and her port when requested.



Fig. 4. A fast motor vessel overtaking another vessel. An overtaking vessel of any kind is always bound to keep out of the way of the vessel she is overtaking. She may request permission to pass the other vessel by sounding one blast of her whistle if she desires to pass on the port side. If the leading vessel believes that it is safe to allow the overtaking vessel to pass, then she answers the signal of the overtaking vessel by blowing a similar whistle. In case the signal is not answered, the overtaking vessel must not pass.

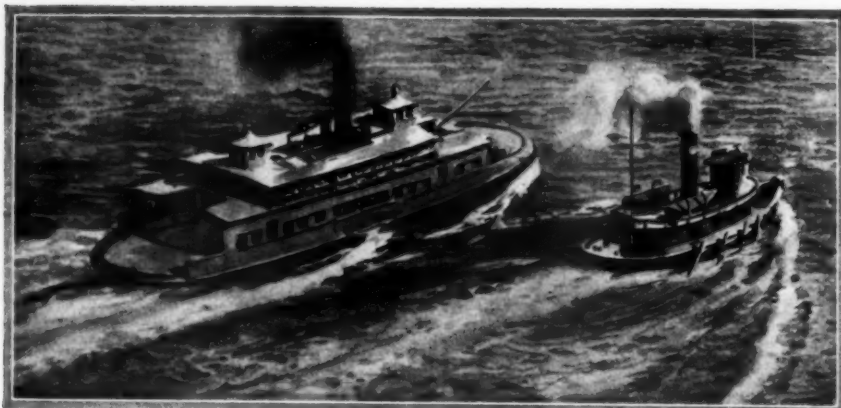


Fig. 5. Two vessels on parallel courses. This is a situation which is generally very confusing to the motor boatman. In the case of the illustration, should the tug desire to cross the bow of the ferry boat she blows one whistle. The ferry boat answers with one blast. Both boats then adjust their courses and speeds in order to allow the tug to cross ahead of the ferry. On the other hand, should the ferry boat desire to pass ahead of the tug she will indicate her desire by two blasts of her whistle. The tug will reply with two blasts and the courses and speeds of the two boats must be adjusted correspondingly.



Fig. 6. A fishing boat. The rights of fishing boats must be respected and observed by craft under way at all times. Boats have a right to fish in all waters, other than channels and fairways and while they are not obstructing navigation. Passing craft should give fishing vessels a wide berth.



Fig. 7. Whistle signals should only be given when danger of collision exists. In the case shown above, the boat in the background will have passed well ahead of the other boat if each hold their course. In such a situation there is no danger of a collision. Whistle signals should not be exchanged.

Fig. 8. In the situation shown below, the motor vessel is crossing the course of the tug and tow. As the motor vessel has the tow on her port bow, the former has the right of way and the proper action will be for the motor vessel to blow one blast of her whistle, hold her course and speed and pass ahead of the tow. The tug should answer with one blast of her whistle and take what action is necessary in order to allow the motor vessel to cross ahead. The fact that the tug boat is a tow does not influence the situation in the slightest.

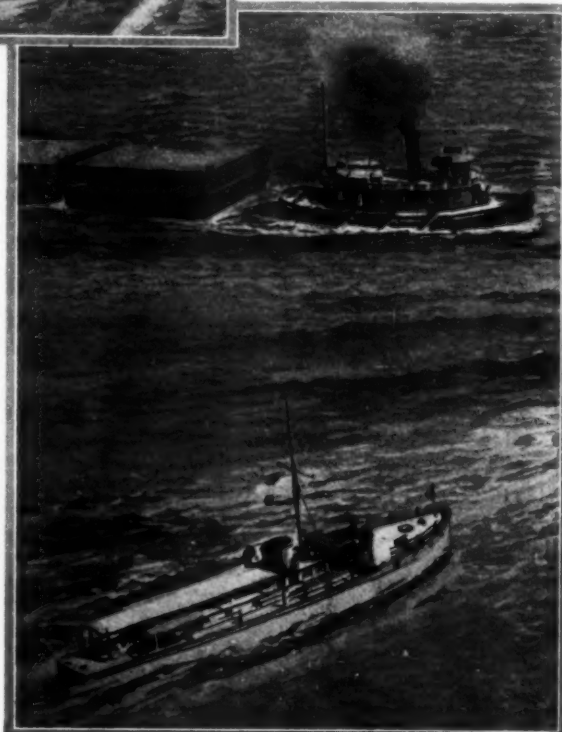


Fig. 9. The danger zone diagram. Only those boats which happen to be in the shaded zone extending from directly ahead to two points abaft the starboard beam of the gray boat off the right should cross ahead of the gray boat. Boats in all other zones must keep out of the way of the gray boat and pass astern of her if necessary.

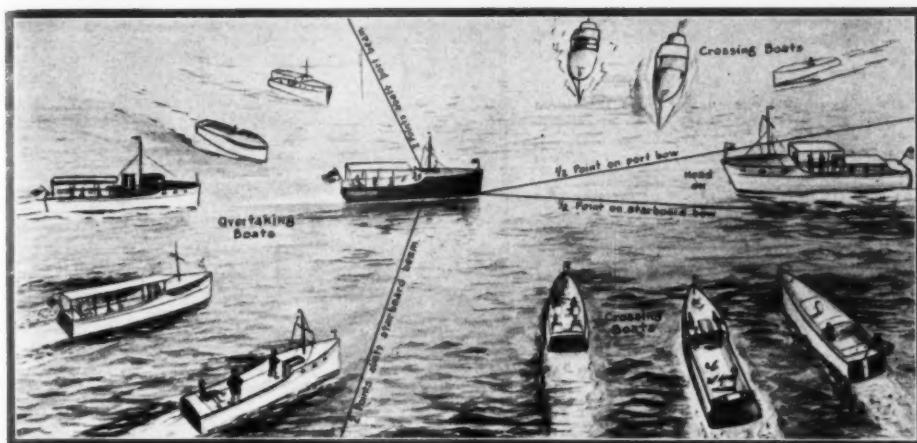


Fig. 11. The three situations—meeting head on, crossing and overtaking. Boats are considered meeting head on when their masts are seen to be in line or nearly so. They are overtaking when one boat is approaching the course of another from a point more than 2 points abaft the beam of the leading boat or when at night the side lights, if correctly placed, cannot be seen. In all other cases, where the courses intersect either at right angles or obliquely, the situation is said to be crossing. Only those boats shown in the lower right-hand corner should hold their course and speed relative to the block boat. All boats in the other positions must alter their courses.



Fig. 10. Any boat, approaching the course of another from a point more than 2 points abaft the beam of the leading boat is considered an overtaking vessel. An overtaking vessel has no rights whatsoever and must keep out of the way of the leading boat at all times. An overtaking boat remains an overtaking boat until she is free and clear of the overtaken vessel. In no case should the action of the overtaking vessel be such as to force the overtaken vessel to change her course.

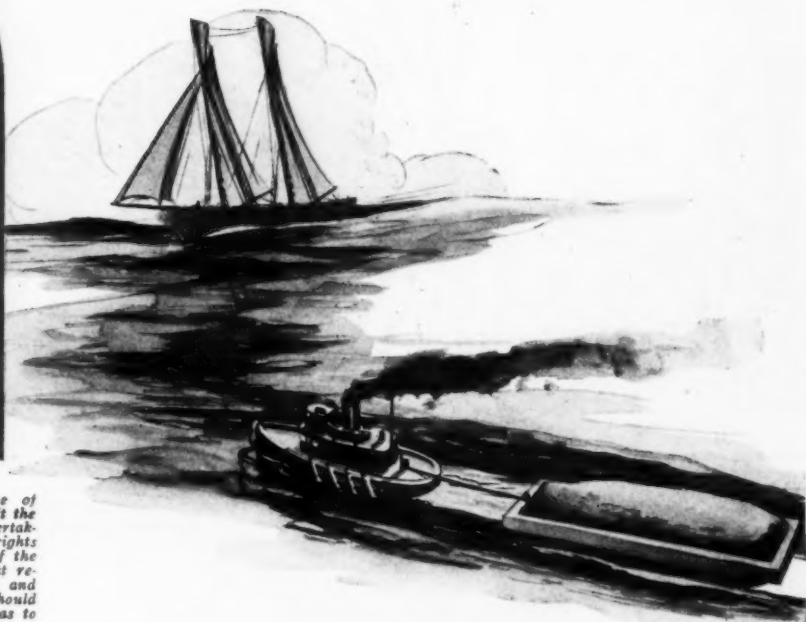


Fig. 12. A sailing vessel, that is, one propelled by wind power alone, without the assistance of any kind of motor or mechanical power, has the right of way over every form of motor or steam vessel in all situations except when the sailing vessel is overtaking the motor vessel.

Fig. 13. In every situation where one boat has the right of way over another, each boat has a certain obligation to perform. The boat having the right of way or the privileged vessel as she is called, must hold her course and speed at all times until the danger of collision no longer exists. Should the privileged vessel steer a crooked course such as indicated by the dotted line or should she vary her speed while danger of collision exists, then the responsibility for an accident will rest upon her. The boat not having the right of way, or the burdened vessel as she is termed, must keep out of the way of the privileged vessel. The rules do not state how this must be done. She may elect her own method of keeping out of the way of the privileged vessel.

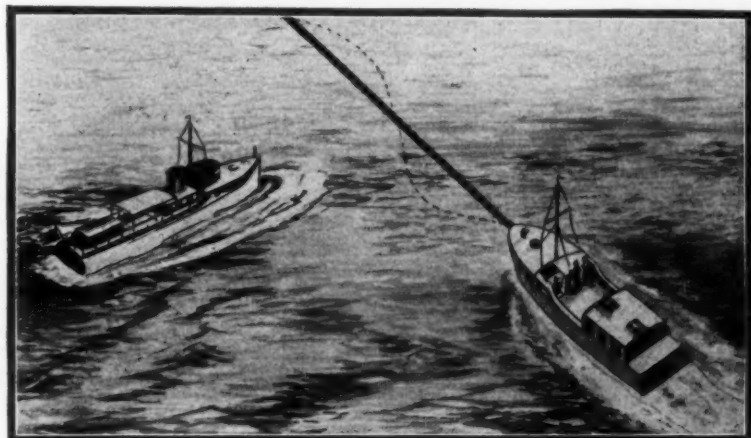




Fig. 15. When two sailing vessels are approaching one another so as to involve risk of collision, one of them shall keep out of the way of the other, as follows, namely:

- a. A vessel which is running free shall keep out of the way of a vessel which is closehauled.
- b. A vessel which is closehauled on the port tack shall keep out of the way of a vessel which is closehauled on the starboard tack.
- c. When both are running free, with the wind on different sides, the vessel which has the wind on the port side shall keep out of the way of the other.
- d. When both are running free, with the wind on the same side, the vessel which is to the windward shall keep out of the way of the vessel which is to the leeward.
- e. A vessel which has the wind aft shall keep out of the way of the other vessel.

Fig. 16. The diagram at the right will give one an idea of the proper way to name directions and bearings on shipboard. The unit is the point. A circle circumscribing the boat is divided into 32 equal parts or points. Each point has a distinct name. The names are dependent upon the distance of the various points from the bow, the beam and the stern of the boat. The word starboard or port is always used with the name of the point to indicate which particular side of the boat it refers. It is very important that the motor boatman keep the names of the points properly fixed in his mind as well as the location of each

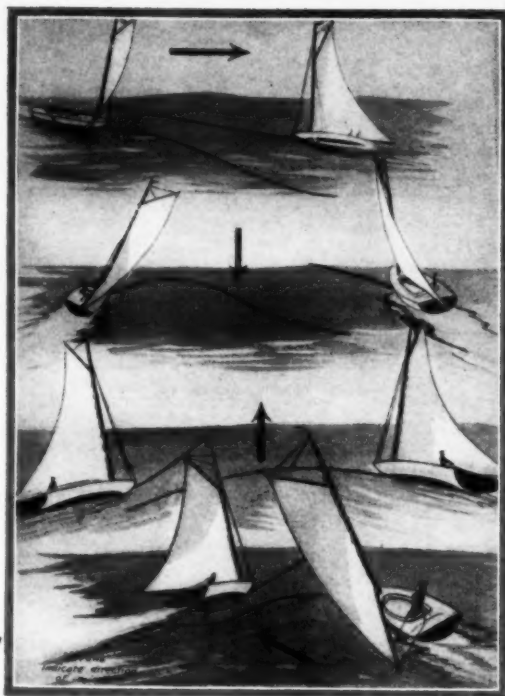
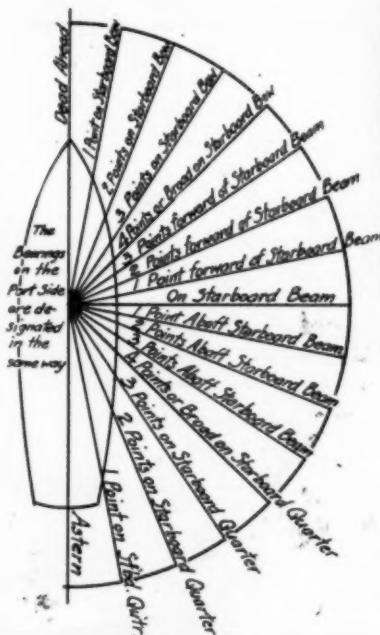


Fig. 14. When two boats are meeting head on or nearly so, it is the duty of each to give one blast on the whistle, port their helms and sheer off to starboard.

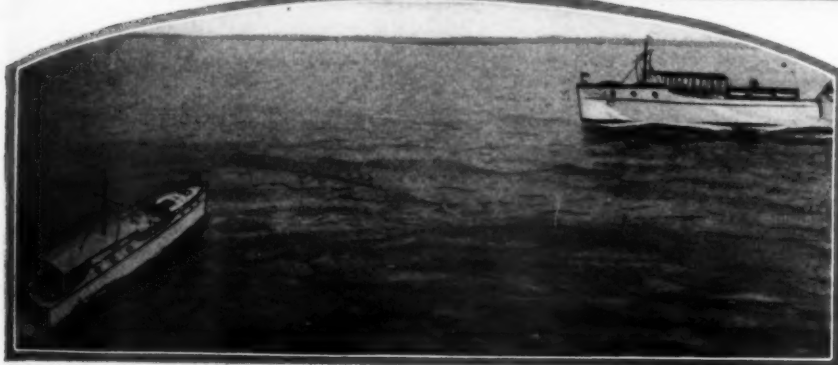
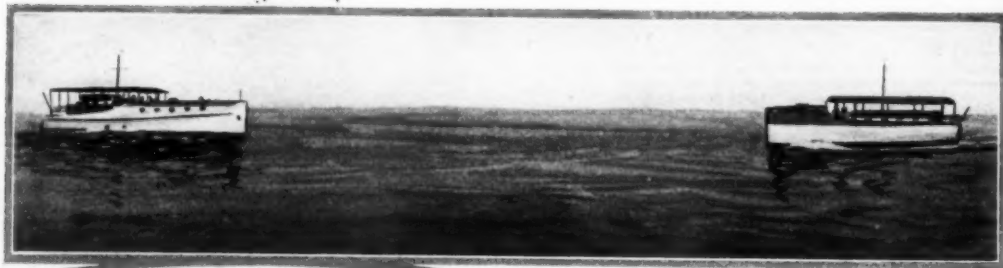


Fig. 17. (At the left.) Two boats in the crossing situation. As the boat at the right is in the other boat's danger zone it follows that the boat on the right has the right of way and it is her duty to hold her course and speed. As an indication to the boat on the left that she is to maintain her right of way, she should sound one blast of her whistle. When the other boat hears this she should acknowledge it by sounding one blast on her whistle and then take whatever means are necessary to keep out of the way of the privileged boat. If conditions warrant it, the boat on the left must stop or reverse in order to pass under the stern of the other boat.



Fig. 18. It is very essential in the case of small motor boats that they indicate what their course is to be other than by simply blowing a whistle signal and waiting for the other craft to acknowledge this whistle signal with a similar one. The whistles on motor boats are very inefficient. The noise from machinery often drowns out the whistle of an approaching vessel. It is therefore essential that as an indication of what the action of the skipper is to be after sounding this whistle signal, he should swing the bow of his boat sharply in one direction. The chances are that this action will be much more readily recognized and understood than if reliance was placed solely on whistle signals alone for the proper execution of the law

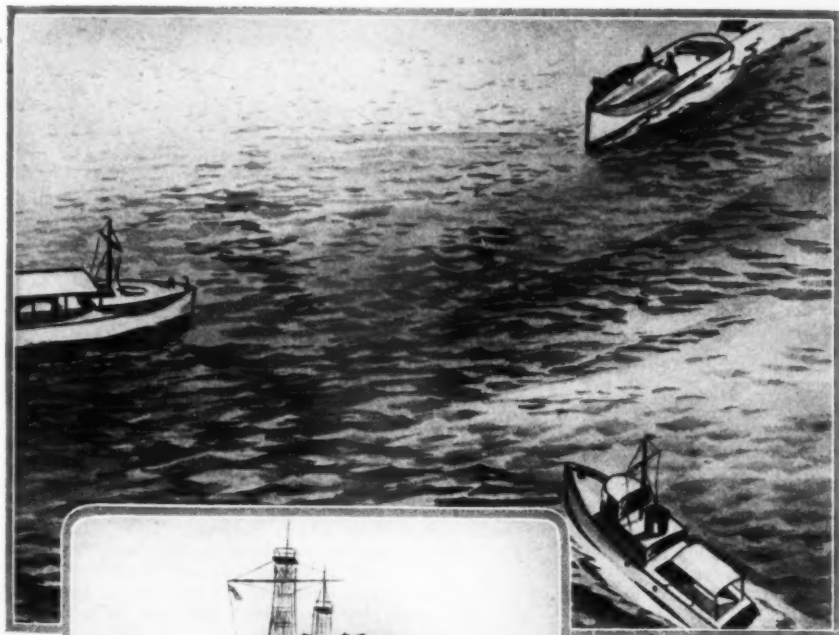


Fig. 19. In all cases of doubt, the danger signal consisting of four or more short and rapid blasts of the whistle should be given. Whenever a whistle signal or the anticipated course of another vessel is not understood or recognized, then it is one's duty to immediately blow the danger signal. When the danger signal is blown, it is the duty of every vessel to immediately stop and reverse and not proceed further until the situation has cleared itself and until the proper whistle signals have been given, answered and understood. If a vessel answers your signal with a cross signal, that is, answers one blast with two or vice versa, then it is your duty to sound the danger signal with four or more blasts. Both boats must then stop and not proceed until the proper signals have been given

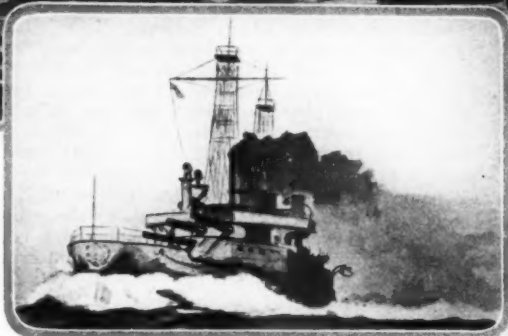
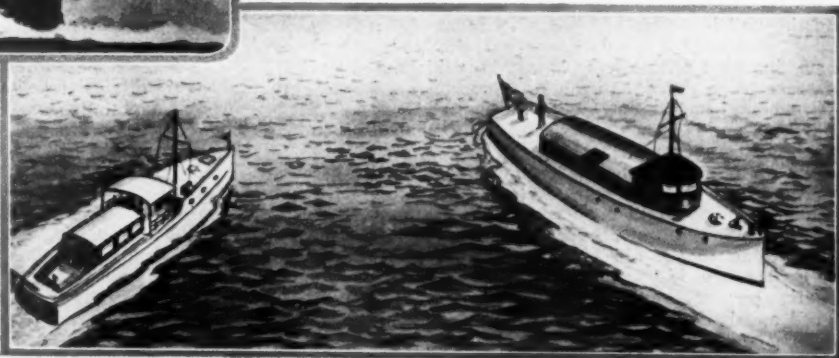


Fig. 20. A battleship or other naval or Government vessel maintains the right of way at all times and in all situations over every other type of vessel. Therefore, do not attempt to give a war vessel a passing whistle signal and expect her to comply with it

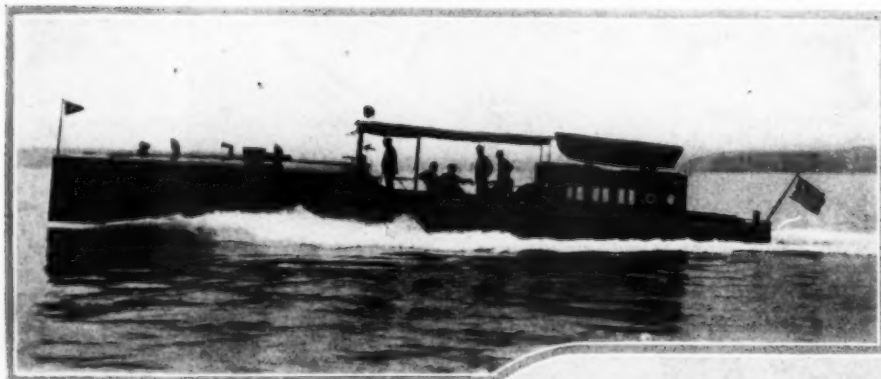
Fig. 21. In the case of a boat backing she indicates that her propeller is going astern by three short blasts of her whistle. When a vessel has stern way on, the stern must be considered the bow for the time being and signals given accordingly. In the situation at the right, the boat on the reader's right is backing. This boat will have the right of way over the boat at the left. Her proper action will be to give one blast on the whistle, maintain her speed and backing course and pass across the bow of the boat on the left. This latter boat answers with one blast of her whistle and takes what action is necessary in order to allow the backing boat, which in this case is the privileged vessel, to cross ahead of her



(Correspondence Course continued on pages 37, 66, 72, 104 and 106)

# The Demand For Speed

The Latest in High Class Cruisers and Runabouts in Which Speed is One of the Chief Objectives



*Greyhound, the high-speed express cruiser recently acquired by Edsel Ford, can move along at 28 m.p.h. when her Hall-Scott motors are called upon*

*Bee, a 35-foot runabout built by the Albany Boat Corporation and owned by J. S. Bache, of New York City, travels at 35 m.p.h. with one six-cylinder 200 h.p. Hall-Scott motor*



*Onondaga III, a 40-foot runabout owned by F. B. Lovejoy, of New York City, is also powered with a six-cylinder Hall-Scott 200 h.p. motor. Her speed is 30 m.p.h.*

**T**RUE to type, this particular Greyhound is both speedy and particularly graceful, a tribute to both the builders of her power plant and to her designers. Greyhound being powered with a pair of the famous Hall-Scott six-cylinder marine engines that have created such a furor in marine circles, one naturally looks for speed, and having been designed by Tams, LeMoine and Crane, the New York Naval Architects, one naturally expects both speed and beauty. Added to this combination is the fact that Greyhound was built by Wood & McClure of City Island, N. Y., and every lover of good boats knows of their work.

The overall length of Greyhound is 58 feet, and the beam is 10 feet 6 inches. The frames are of oak throughout and the hull is double planked with cedar and mahogany, copper fastened. The general plan of the boat shows that she is intended primarily as a fast day cruiser, a great deal of space being devoted to the large cockpit.

Greyhound has recently been purchased by Edsel Ford of Detroit and is to be used by him to supplement his high-speed runabout Comanche.

Her Hall-Scott engines drive her along at 28 miles an hour and have shown remarkable consistency and economy of operation under all conditions, with almost total freedom from vibration at all speeds.

According to the old kindergarten alphabet, B stands for Beauty, and if you doubt it, one glance at the accompanying picture should convince you of the fact. "Designed and built by the Albany Boat Corporation," is the finishing touch that concludes the argument, for beauty has always characterized the long line of successful runabouts built by this famous firm. Bee was built to the

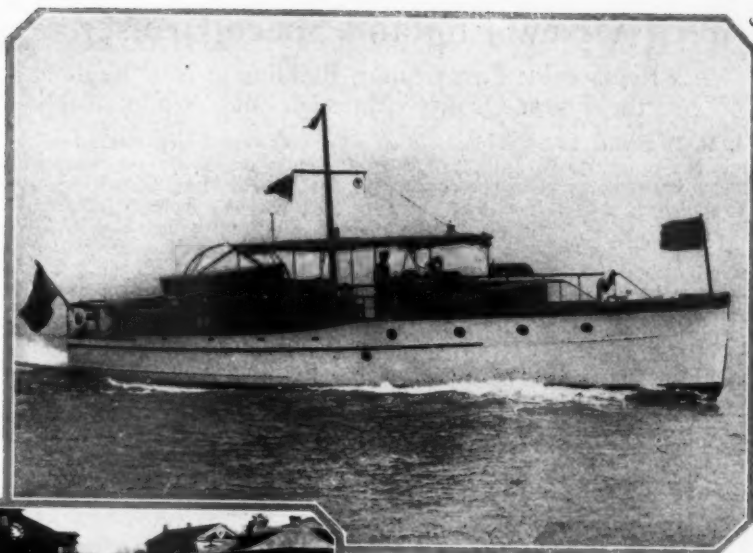
order of Julius S. Bache, the well-known New York banker who summers at Upper Saranac, N. Y., and is of the big wholesome type of runabout, having been designed more for comfort and reliability rather than for mere speed. With an overall length of 35 feet and a beam of 6½ feet, and with plenty of freeboard and wide flaring bows, Bee is of course a fine dry boat to ride in and is practically free from spray under all kinds of conditions. The fittings are of the very finest throughout, the upholstery being particularly well calculated to add to the enjoyment of the passengers. Built up to the usual Albany standards, the planking of solid mahogany, is beautifully matched throughout and the finish beyond criticism.

Equipped with a six-cylinder 200-hp. Hall-Scott Marine Engine, Bee is remarkably fast for so substantial a boat, easily attaining a speed of 35 miles an hour.

The remarkable improvement that may be made, even in a heavy substantial boat, by re-powering it with a high-powered engine of light weight, is particularly well exemplified in the case of Onondaga III, the beautiful big mahogany runabout owned by F. B. Lovejoy of New York City.

This craft, which has an overall length of 40-feet and a beam of 8-feet, was built by Hutchinson Brothers of Alexandria Bay, N. Y., the well-known Thousand Islands boat builders, and although in every sense of the word a big roomy, comfortable family runabout, yet re-powered with a six-cylinder 200-H.P. Hall-Scott marine engine, attains a steady speed of 30 miles an hour. This represents an increase of five miles an hour over the speed attained with the old six-cylinder engine, which in actual cylinder dimension was much larger than the Hall-Scott.

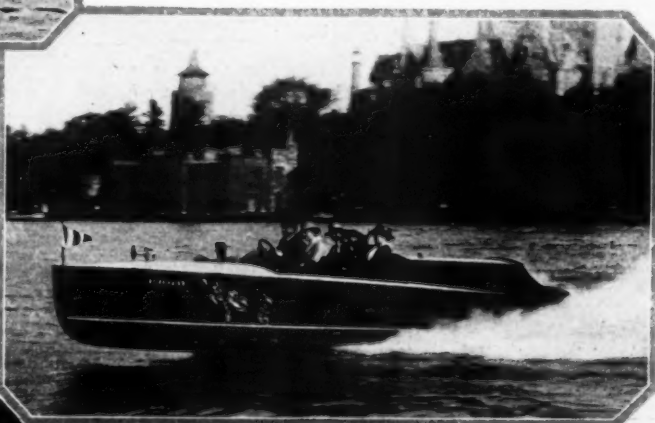
*Josephine H, 50 ft. x 12 ft. cruiser, owned by Harry T. Smith of Chicago. Designed and built by Matthews, powered with a special GR six-cylinder Sterling. Speed 22 m.p.h.*



*Florazel, 40 ft. x 8 ft. cruiser, owned by G. H. Clamer of the Ajax Metal Co., Philadelphia, Pa., powered with a GR six-cylinder Sterling. Speed 22 m.p.h.*

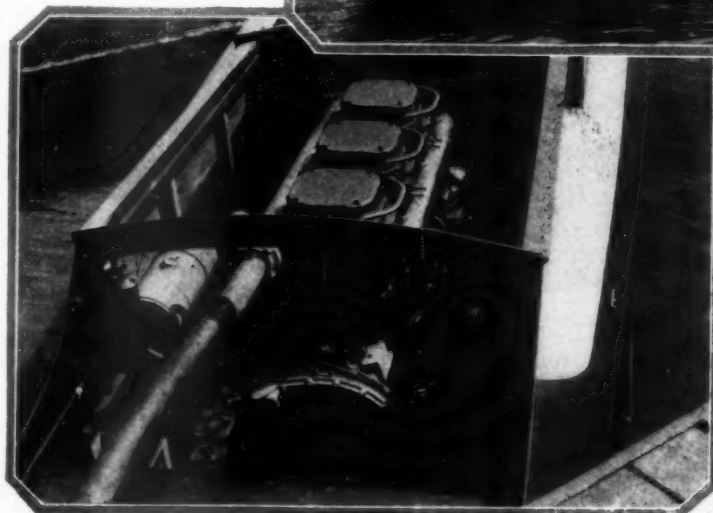
## A Few Sterling Boats

Typical Examples Widely Ranging in Size, Power and Speed Showing the Possibilities of Modern Marine Motor



*P.D.Q. VI, formerly the fast racing hydroplane once powered with a twelve-cylinder motor and owned by Alfred Graham Miles of the Thousand Islands and New York City but now a useful and comfortable craft which Mr. Miles uses for fast runabout service. The hull is a single-step hydroplane, and is typical of the useful purposes to which many of yesterday's racing craft may be placed by using a moderate power, up-to-date marine engine*

*The installation of the six-cylinder 200 h.p. type GR Sterling motor in P.D.Q. VI*





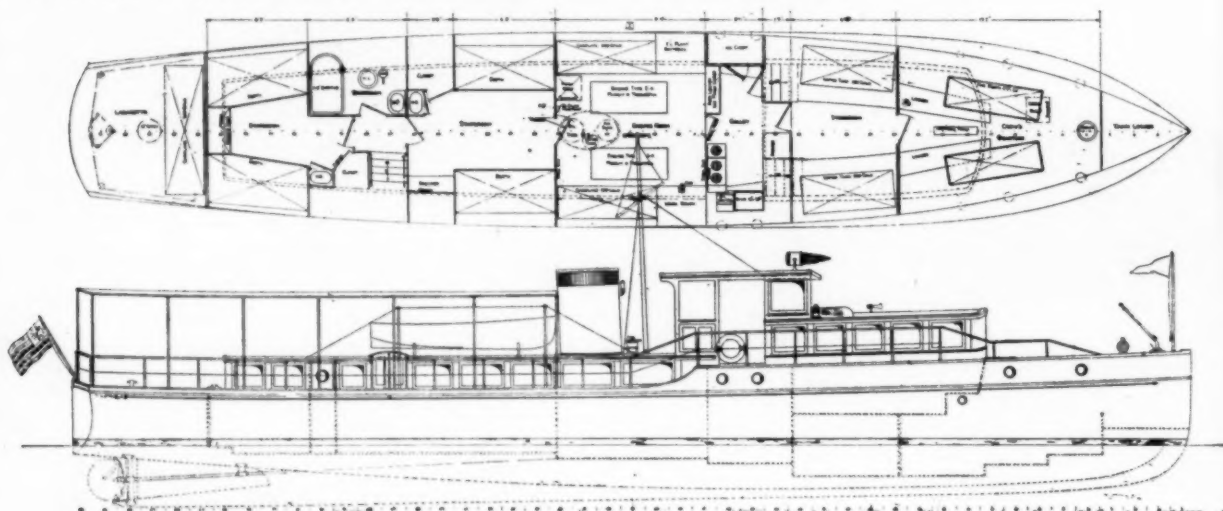
## A New England Speed Cruiser

A Remarkable Fast Cruiser, Building in New England  
of the Finest Quality Materials and Workmanship

**D**ESIGNED by J. M. Densmore and building at their yards at Atlantic, Mass., for W. W. Wilson of Boston, is one of the finest types of high-speed cruisers yet produced. Her overall length, 73 feet and 12 foot 9-inch beam makes her large enough to permit the incorporation of many luxuries in design not possible in a smaller boat. Wonderful staterooms and quarters are the natural result. Her construction is being carried out in the best possible manner, the trim throughout being of teak and mahogany. As indicating the character of this yacht the fact that the decks are of teak alone speaks volumes. For reliable power equipment two Murray & Tregurtha four-

cylinder type E-4 gasoline motors are provided and while extreme speeds are not wanted this equipment will yield ample speed. Engine room accessories of the most modern type will be supplemented by a 32-volt one-k.w. electric generating set with lead plate batteries. Gasoline is carried in two tanks, each of 500-gallons capacity.

The construction of the boat follows the most up-to-date methods and all materials are of substantial size and most excellent quality. All frames, keel, shaft logs, etc., being of oak while hard pine is also used extensively. Planking is to be of selected long leaf yellow pine 1 $\frac{3}{4}$  inches thick and in long lengths.



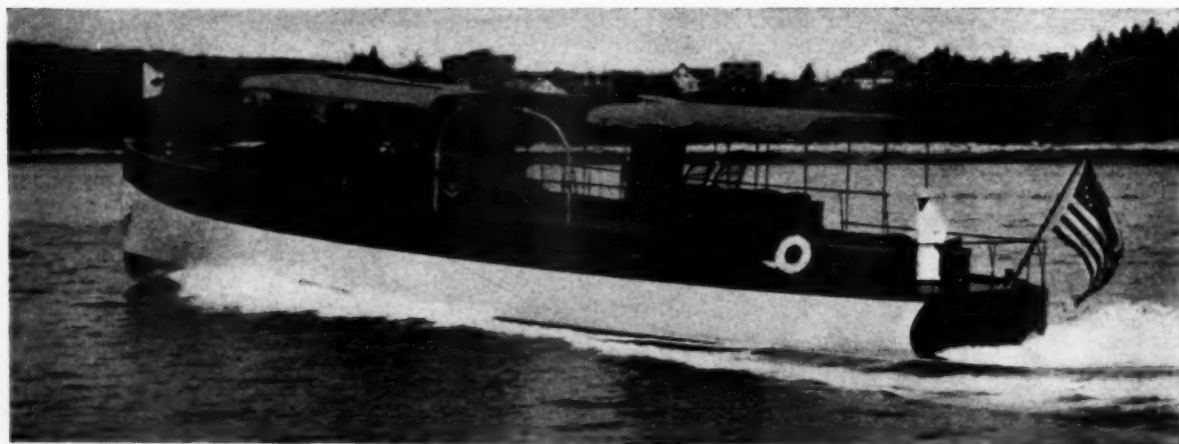
*Plan and profile views of the new 73-foot cruiser building at the plant of J. M. Densmore Co., Atlantic, Mass.*

## Whiz, Another Fast One

The Demand for High Speed is Well Met in This 75-Foot 22-mile Cruiser

**W**HIZ, a round bilge express cruiser is a boat with some unusual characteristics. She was designed and built by E. L. Stevens of Newburyport, Mass., for S. C. Davis of St. Louis, who uses her during the summer at Winter Harbor, Maine. Her length is 75 feet, beam 15, and she is capable of 22 m.p.h. when her two dual valve eight-cylinder Sterlings are called upon to exert themselves. The speed which Whiz is capable of is more

than is usual in boats of this size and type. She was built particularly to be a very good sea boat in order to negotiate safely and speedily the rough waters along the New England coast. Her entire deck space has been kept clear for lounging and observation, there being no breaks until the after cabin is reached. A boat of this type, naturally will withstand a heavy sea and shake herself free of the waves without showing any signs of distress.

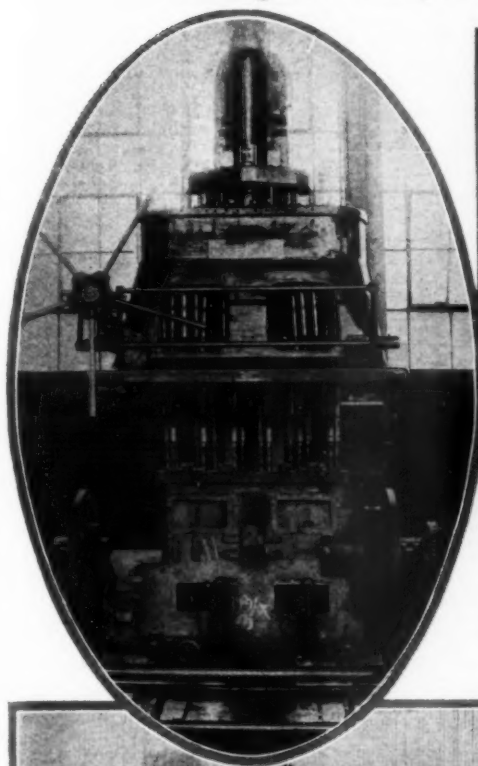


*Whiz, a high-speed Sterling-equipped cruiser of 75-feet length*



# How Marine Motors Are Produced

By Using Modern Methods of Quantity Production The Factory  
Turning Out To-day's Marine Motors Brings Their Cost Down



*The many holes in a crank case are all drilled in one operation by the use of a large multiple spindle drill. The crank case is clamped into the fixture and travels from one multiple spindle to another until all operations are complete*

*Milling machines are used in the J.V.B. factory for machining crank cases, cylinder heads and numerous other parts which require accurate machine work*



*All J.V.B. motors are tested on a permanent oil-pan foundation. This method makes it possible to remove from the engine all filings and foreign matter before the oil pan is placed on the engine*



*The most modern machinery is used throughout the J.V.B. plant. Fellows gear shapers are used for cutting the wide, helical cut timing gears*



*Intake and exhaust manifolds are machined in a special milling machine which is particularly adapted to this work*

# How to Build Nomad, a

A Complete Design for a Substantial Cruiser  
Information, Construction, Details, and

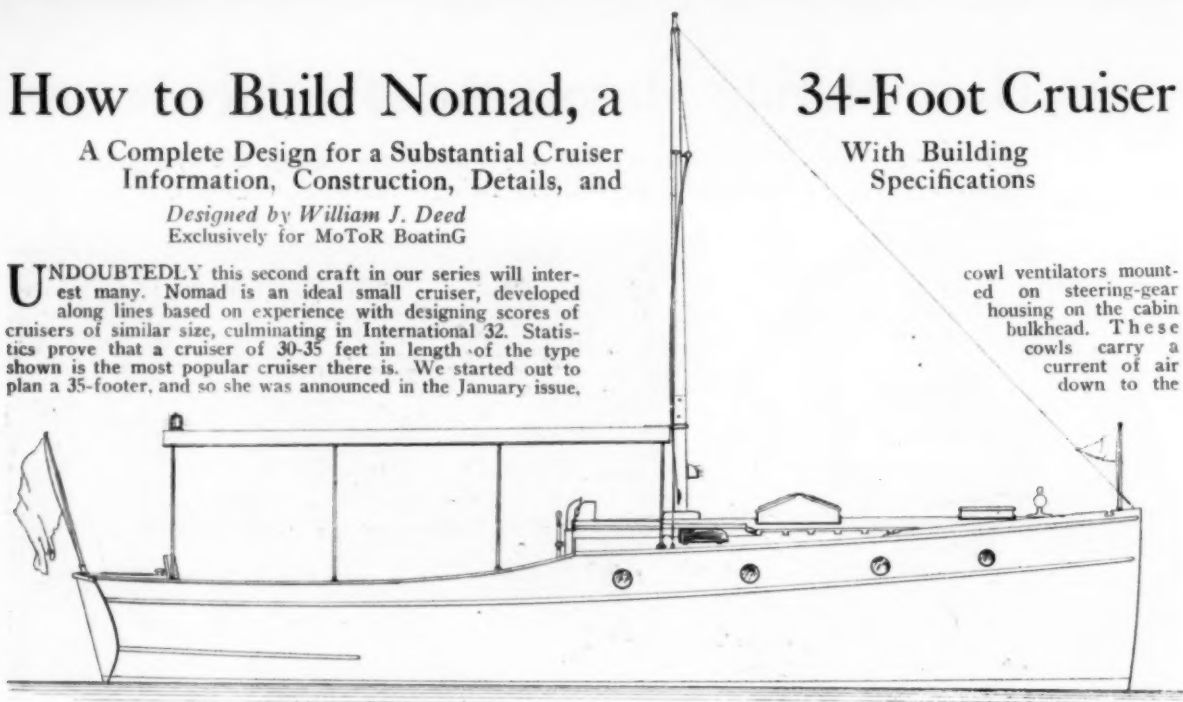
Designed by William J. Deed  
Exclusively for MoToR BoatinG

# 34-Foot Cruiser

With Building  
Specifications

**U**NDoubtedly this second craft in our series will interest many. Nomad is an ideal small cruiser, developed along lines based on experience with designing scores of cruisers of similar size, culminating in International 32. Statistics prove that a cruiser of 30-35 feet in length of the type shown is the most popular cruiser there is. We started out to plan a 35-footer, and so she was announced in the January issue,

cowl ventilators mounted on steering-gear housing on the cabin bulkhead. These cowls carry a current of air down to the



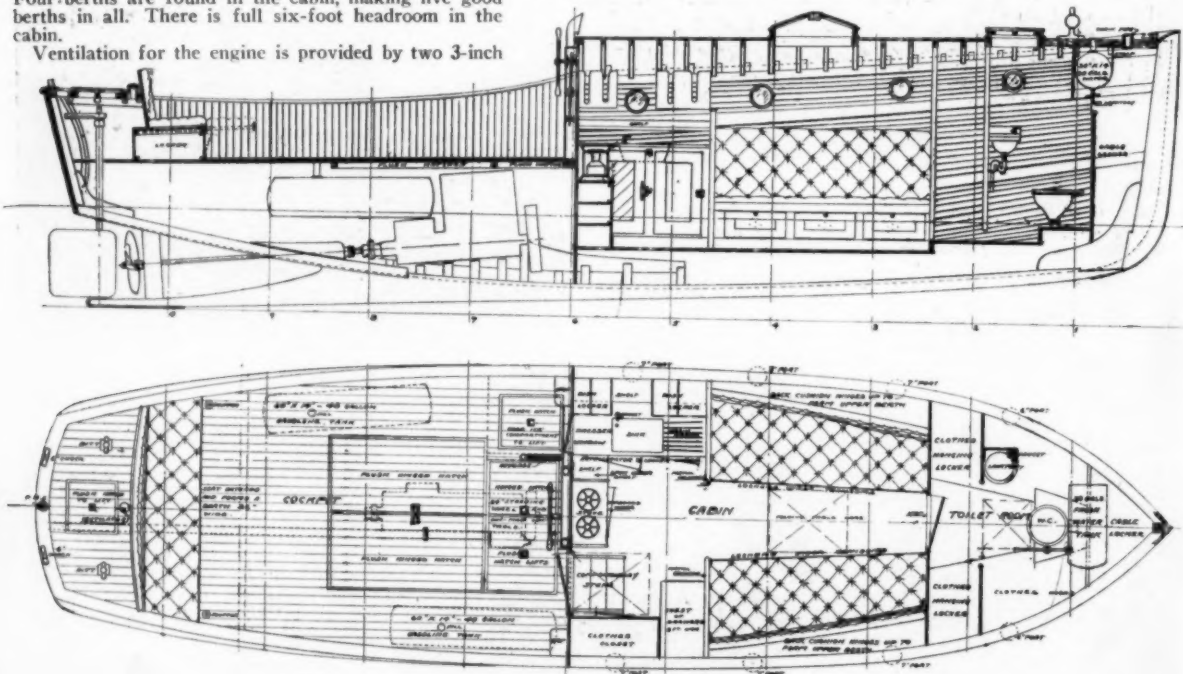
Outboard profile of 34-foot cruiser Nomad

but found that we could get all we needed in 33 feet 10 inches and, in the interests of keeping the craft small and economical, we held her there.

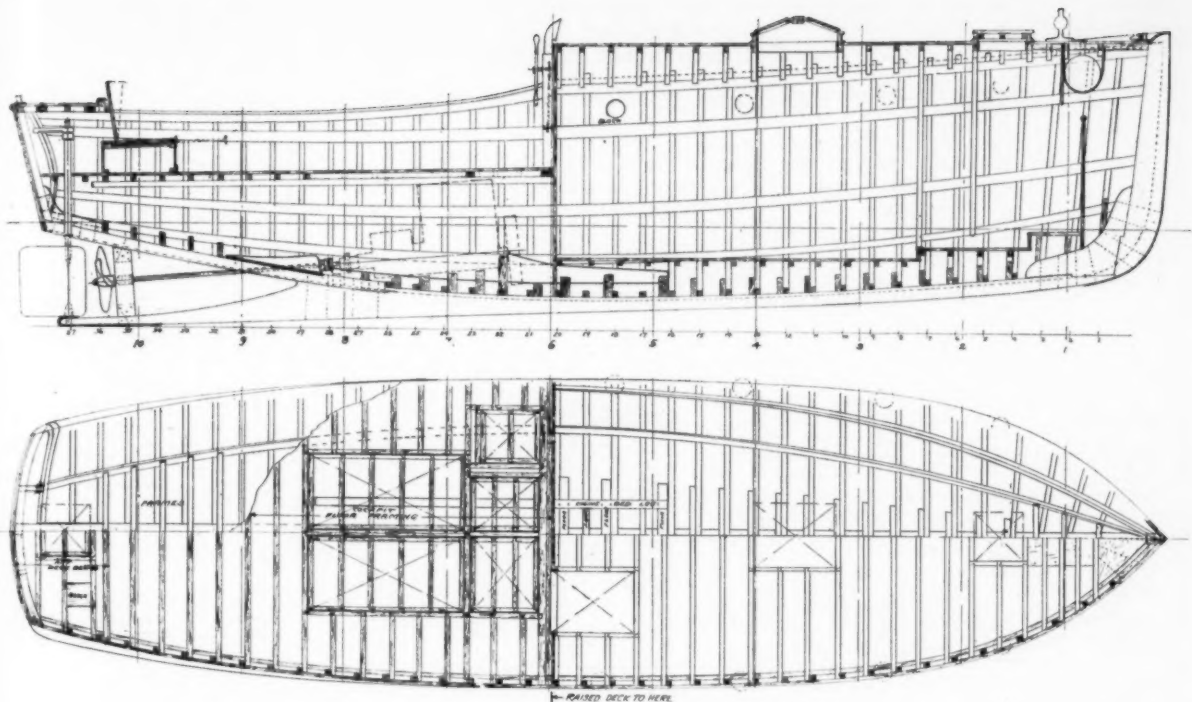
Some of the main features which will appeal to the experienced boatman are the bulkhead between the living quarters and the engine and tanks, the very large clear cockpit, the hinged mast, the extension seat in the cockpit, accessibility of the motor, and the good depth of hull, making for steadiness and seaworthiness. The average cruiser is used mostly for day trips or weekend cruises, when a large cockpit is desirable, and Nomad affords an exceptional amount of deck space. By keeping the engine under a flush floor, and there are plenty of suitable engines that will fit under the floor, a clear space 11 feet by 9 feet is obtained. The whole cockpit can be enclosed by curtains and the aft seat is made to extend and form a comfortable berth three feet wide. Four berths are found in the cabin, making five good berths in all. There is full six-foot headroom in the cabin.

Ventilation for the engine is provided by two 3-inch

engine and on the aft deck is fitted a 3 1/4-inch ventilator. Flush hatches, arranged to hinge and also to lift off, give ample accessibility to the motor. The ice-box is filled through a flush hatch in cockpit floor, rendering it unnecessary to carry ice into the cabin, and the 20-gallon fresh-water tank is filled through deck-plate on forward deck. This tank feeds by gravity to the faucets at lavatory and sink, rendering pumps unnecessary. The fuel tanks are filled through deck-plates into which filling pipes are screwed, rendering it impossible to spill fuel into the bilge. There is a window in the bulkhead separating cabin and cockpit so that food can be served without leaving galley, when dining in the cockpit. There is a big sense of security and contentment in having a bulkhead between your galley stove and the gasoline tanks and piping. A shipmate stove can be safely installed in place of the type shown. The companionway steps form a larger



Inboard construction profile and interior arrangement plan of Nomad

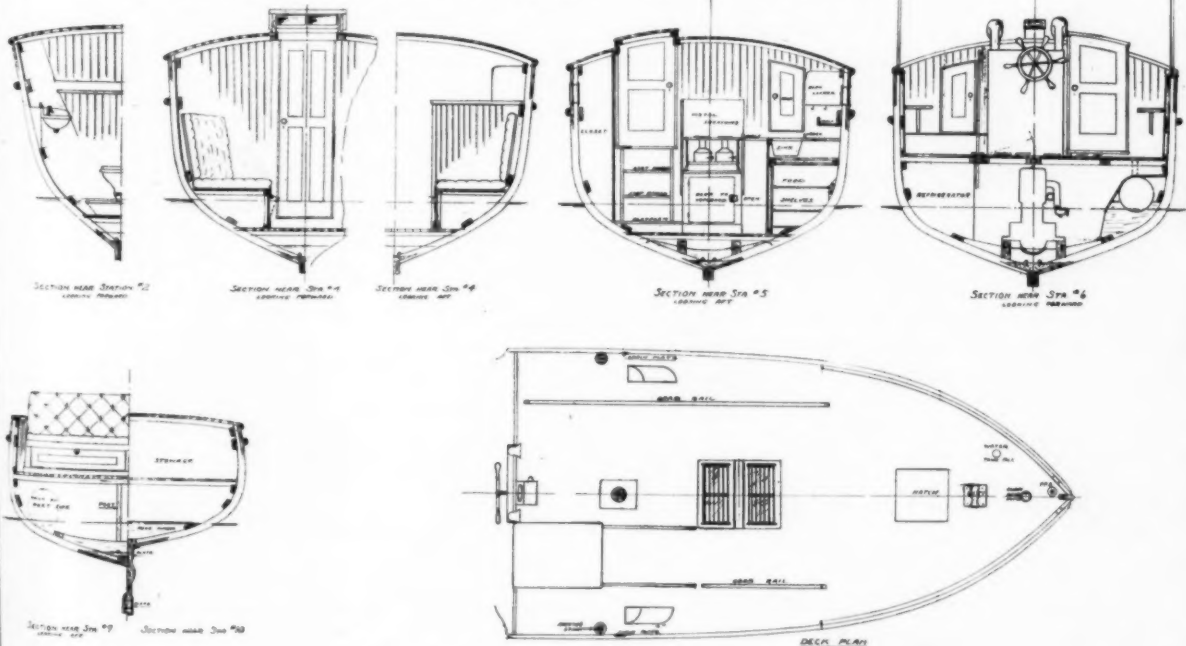


*Inboard framing profile with beam plan at deck and floor levels*

locker for all sorts of odds and ends which are so useful but not so ornamental about a cabin. There is a shelf alongside the stove with space under it where spare five-gallon water jug or kerosene can be stowed. Plenty of stowage room is provided. It is unlikely that anyone but a man with some experience and ability in the use of carpenter's tools will attempt the construction of Nomad. We will, however, go into the construction completely so that the procedure will be perfectly clear to all, and if additional information or suggestions are needed we hope MoToR BOATING readers will write the author.

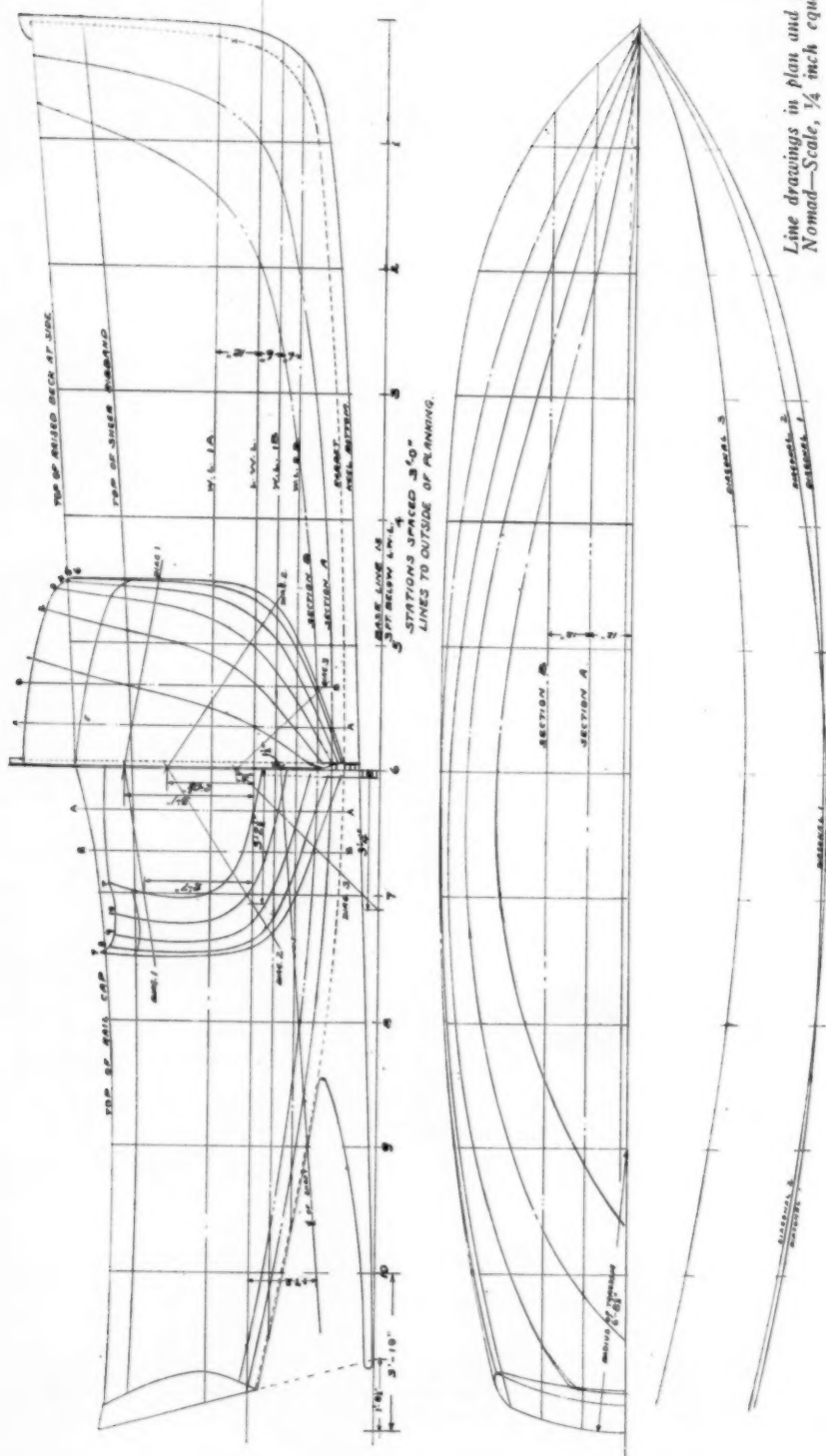
You need a covered place of some sort in which to build Nomad. Rain and sun won't do the light structure any good. Also, you will need the ordinary carpenter's tools of various suitable sizes for the job, saws, bitts, planes, breast drills, braces,

set of assorted wrenches, hammers, screw-drivers, chisels, bevel, square, chalk-line rule, spirit level, dividers, 10-foot straight-edge, machinist's riveting hammer, sledge hammer, work bench with vise, steam box longer than the longest piece you have to steam, and as many screw clamps as you can lay your hands on, and the required fastenings, lumber and equipment. The first job is making the molds. If you have prepared a smooth floor to work on either paint it or cover it with building paper so as to lay down the lines full size, that is, draw the boat you see in these pages full size on your shop floor. Please bear in mind that these lines and measurements given are to the outside of planking and the thickness of whatever plank you use must



*Joiner work sections for Nomad with forward deck plan*





Line drawings in plan and profile for  
Nomad—Scale, 1/4 inch equals 1 foot

be taken off this when making the molds. It is quite possible that some may want to use 1/8-inch finished planking which is O. K., but none lighter than the specified 7/8 inch should be used, and so we draw the lines to the outside of plank. You deduct this thickness when you build.

To lay her down, strike in the base line, using a chalk line, chalk it, and about a foot or two from either end raise it three or four inches and snap it sharply; pencil this chalk line in with straight-edge. Three feet above this line run the L.W.L. exactly parallel with it, then the other water lines, and erect the station lines perpendicular to the base and water lines. Now draw in sheers, sections, rabbet, keel bottom and the body plan showing the lines that will give us our molds. You will need a spruce batten about 1 by 2 1/2 inches, as long as the boat if you can get it, also a half dozen 1/2-inch square white pine

battens for drawing the body plan sections. Drive nails alternately first on one side and then on the other side of the batten, not through it, and judge by eye until you get the batten sprung to a fair line; then work it with carpenter's pencil. Continue this until you have reproduced full size the whole form of the boat. Then mark a line 7/8 inch inside of the lines drawn on the floor, so as to get a line to represent the outside of the frame, which is the outer line of the molds we need. All corresponding points and distances must agree on all views or your drawing is not fair. Work must be continued until all corresponding distances agree. Accuracy in this important step will insure easier work later on.

The molds should be made of any rough stuff such as spruce, country pine, etc., 1 1/2 inches thick. Make your molds strong and true. The boards needn't be much to look at but they must be well put together, they must be fair and true and both sides

must be alike. The lines in our drawing show only one-half the mold shape; you must reproduce the outline obtained on one-half onto the other side. To do this, lay over the line drawn on the floor some spruce boards, cut in as few pieces as possible, to cover the shape of the section as shown by this line. Fasten them together and lay nails along the line at inside of planking, with the heads on the line; then lay the boards over the section to be reproduced and press down hard. The nail heads will dent the wood along the line and you can saw out the shape. Then fasten the two sides together by a cleat across the bottom and a piece across the top of the mold, and diagonal braces to keep it from changing shape. The upper piece should be straight on its upper edge and should spread the mold to the exact breadth of the boat at that station. Mark the center line on this upper cross pawl and again at the bot-

(Continued on page 76)

## Duties of a Regatta Committee

*MoToR BoatinG is indebted to Frederick R. Still of Detroit, Mich., chairman of the American Power-Boat Association Gold Cup Committee, for many of the suggestions printed below. Never before, as far as we know, has any attempt been made to compile and publish such a complete and systematic list of duties of a regatta committee. We advise everyone interested in racing to preserve the data printed below for future reference.—EDITOR.*

### Duties of Various Committees

#### (A) Race Committee

Draw up rules of race, times of start, etc.  
Provide for various classes (Cruisers, Runabouts, etc.)  
Have race circular and programme printed  
Mail race circulars and programme with invitation to owners to race  
Take care of receipt of entries  
Print circular of instructions  
Furnish owners with charts of course and circulars of instruction each day at least one hour before start  
Be familiar with racing rules  
Make official ruling on any subject connected with racing rules  
Determine course and distance for each class  
Designate and provide equipment for starting signal  
Designate and provide equipment for recalling signal  
Appoint an official starter  
Assign a racing number for each boat  
Arrange platforms with railings and protection from storm for officials  
Arrange space for invited guests in judges' stand or elsewhere  
Have two cannon and plenty of shells, swabs and extra lanyards  
Request Secretary of Commerce to assign Federal patrol  
Select gunners to fire cannon  
Start race upon signal from timer  
Provide place to get gas, oil, derrick, ways, dockage, repairs and supplies  
Provide prizes for 1st, 2nd and 3rd in each class  
Attend to storage of paraphernalia every night  
See that all details are cleaned up daily  
Prepare all notices for succeeding day and post on bulletin after sunset  
Arrange for prizes on exhibition  
Arrange for committee meetings daily  
Arrange for flags to be shown from judges' stand to designate lap numbers  
Arrange for meeting of contestants daily  
Provide megaphone for judges  
Arrange for presentation of prizes  
Have general charge of all details not assigned to a special committee

#### (B) Judges at Start and Finish

Pass on fairness of start  
Consider and make rulings on requests for postponement  
Give signal to timers when each boat crosses line at start  
Give signal to timers when each boat crosses line at beginning of each lap  
Give signal to timers when each boat crosses line at finish  
Give signal to starter for recall or restart  
Report to Race Committee fouling at start or during race  
Show any signal to contestants that may be designated or agreed upon  
Report to timers withdrawal of any boat from course  
Have general supervision of race after starting gun

#### (C) Judges of the Course

Arrange for placing a judge at each important turning point  
Arrange for boats for judges at turning points  
Observe that all contestants turn all marks fairly  
Report fouls or infringement of rules observed  
Render assistance in case of accident  
See that all details are cleaned up daily

#### (D) Timers' Committee

Appoint timers  
Provide stop watches  
Provide official time piece (chronometer)  
Select recording clerks  
Have recording sheets printed for each class  
See that tables, chairs, water and cups are provided for clerks and officials  
Select men to call names of boats approaching line to timers and clerks  
Provide thumb-tacks to fasten paper to boards  
Provide boards to hold record sheets  
Give official time to contestants when requested  
Turn over to Race Committee all official time sheets properly signed at end of each day's race  
Record time of start, beginning of each lap and finish on official time sheets  
Make notation on time sheets of duration of time any boat stops, is off course, accepts outside assistance, etc.  
Appoint one timer to transmit times, records, etc., to reporters and press  
Furnish public with all times and information which can be readily done  
See that all details are cleaned up daily

#### (E) Technical Committee in Charge of Competing Boats

Inspect boats before race  
See that Deed of Gift requirements regarding no repairs, no replacements, etc., between heats are complied with  
Take charge of competing boats after they have finished. Put fuel aboard and take boats to place of storage until next race  
See that observer is placed aboard each competing boat immediately after finish of heat and that boat is kept under watch until next race  
Seal motor compartments at finish and break seals before start  
Have competing boats at starting line ready to be turned over to owner and crew fifteen minutes before starting time  
Provide contestants with racing numbers  
Arrange for storage of contestants' boats  
Provide watchman for contestants' boats  
Get name of owner, city, club and boat  
Get name of driver and mechanic  
Give both printed and verbal instructions to every driver  
See that any racing data which contestants may wish is provided  
See that full equipment specified by Government or racing instructions is aboard during each race  
Report any particulars which would seem to render the boat or her equipment unsafe or unseaworthy

#### (F) Committee in Charge of Patrols

See that spectators' yachts anchor in proper location  
See that spectators' yachts and other boats remain at anchor during race  
Appoint Patrol Fleet Commander  
Assign position and duties to patrol fleet  
Provide boats to patrol  
Carry out interfering traffic regulations  
Arrange for putting patrol officers aboard patrol boats  
Arrange for cooperation with local police patrol  
Provide messenger boats and assign one or more to each committee  
Keep the race course clear  
Provide megaphones for each patrol boat  
Watch out for drift wood and other floating objects  
Consult Federal patrol officer and arrange duties for patrol

(Continued on page 106)

# SMALL MOTOR BOATS

## Their Care, Construction, and Equipment

A Monthly Prize Contest Conducted by Motor Boatmen

Questions Submitted for the April Prize Contest

1. What can you suggest towards improving the turning qualities of a hard turning boat?

(Suggested by W. B. M., Newburgh, N. Y.)

2. Explain and illustrate a satisfactory whistle outfit which can be readily made by an amateur.

(Suggested by T. M. E., Jersey City, N. J.)

3. Explain with diagrams a reliable method of timing the ignition and valves of a gasoline motor.

(Suggested by W. B. M., Newburgh, N. Y.)

### Rules for the Prize Contest

ANSWERS to the above questions for the April issue, addressed to the Editor of *MOTOR BOATING*, 119 West 40th St., New York, must be in our hands on or before February 25, (b) about 500 words long, (c) written on one side of the paper only, (d) accompanied by the senders' names and addresses.

The name will be withheld and initials used. QUESTIONS for the next contest must reach us on or before February 25. The Editor reserves the right to make such changes and corrections in the accepted answers as he may deem necessary.

The prizes are: For each of the best answers to the questions below, any article or articles sold by an advertiser advertising in the current issue of *MOTOR BOATING* of which the advertised price does not exceed \$25, or a credit of \$25 on any article which sells for more than

that amount. There are three prizes—one for each question—but a contestant need send in an answer to only one if he does not care to answer all.

For answers which we print that do not win a prize we pay space rates.

For each of the questions selected for use in the following month's contest, any article or articles sold by an advertiser advertising in this issue of *MOTOR BOATING* of which the advertised price does not exceed \$5, or a credit of \$5 on any article which sells for more than that amount.

All details connected with the ordering of the prizes selected by the winners must be handled by us. The winners should be particular to specify from which advertisers they desire to have their prizes ordered.

## Work to Be Done While Boats Are Laid Up

### Practical Suggestions for Remedying the Numerous Annoying Mishaps and Guarding Against Trouble During the Summer

Answers to the Following Question, Published in the December Issue:

*"What work do you expect to do on your motor boat while it is out of commission during the winter months?"*

### Hopes to Protect Magneto from Moisture

(The Prize-Winning Answer)

MY winters are usually as well paved with good intentions as the region of high temperatures and low spirits is popularly supposed to be, but if I carry out the program that I have set for myself my 26-foot V-bottom runabout will be a better craft in the spring.

First I'll install a power bilge pump at the point along the keel to which the water drains when the boat is under way. It happens that the engine flywheel clears the keel by not much more than a quarter of an inch, and heretofore I have submitted to a shower of bilge water every time I slowed down abruptly and caused the oil contents of the bilge to rush forward seeking a new level. I shall keep a good grip on my old-fashioned galvanized pump, however, as power pumps, automatic bailers, and the like are worse than useless when the motor is out of whack.

Next on the list will be the installation of a canvas windshield between the cockpit and the motor compartment. There is nothing fancy about my boat, and I wouldn't go to the expense of installing a regular glass windshield, nor yet do my tastes run to curved spray hoods or the shark-fin type of protection that does yeoman service for the Down East lobster craft. But in cruising 2,500 miles last summer I swallowed a sufficiency of salt spray and cold rain to last me a couple of seasons, and my constitution craves dryness and warmth. The difficulty of installing a windshield which does not fold up or drop between bulkheads is that it bars ready access to the motor compartment; but I plan to obviate this annoyance by placing two serviceable stanchion sockets thwartship in the deck and setting in them the ends of a pipe which is bent twice to form three sides of a rectangle and is laced with khaki duck. Wing-type set screws in the stanchion sockets will permit me to lock the windshield frame in position and unlock it for temporary removal when for any reason I want to reach into the motor compartment from the cockpit.

The boat is decked over forward of the cockpit, the engine space being covered by two hatches opening from the

sides. When the paint is new on the central hinge flying spray is pretty well excluded from the compartment, but when the paint wears away, sea water has the unpleasant proclivity of seeping in and following the ignition wires down to the magneto distributor, where it collects and puts two or three cylinders out of commission. Last summer I tried various expedients for protecting my ignition system from shorts, but I made the mistake of instituting remedies instead of preventives. So my next step will be to run a drip board fore and aft below the hinge, and by this means conduct incoming water clear of the engine and its wiring. I look forward to a healthy spark in the most brisk head winds.

The runabout is so simple in plan and arrangement that even the most enthusiastic putterer could think of but few improvements with which to occupy his pleasant winter afternoons. But there are two or three details having nothing to do with spray or bilge water which I hope to look after. One of the new installations will be a sediment cup in the line which pumps pressure into the gasoline tank. Although the pressure pump is installed forward of and above the pipe that admits cooling water to the exhaust line, I have found that it constantly forces a small amount of hydrous vapor into the gasoline tank along with the compressed air. When this vapor condenses into water and collects in sufficient quantity it slops into the gasoline outlet in the tank and gives trouble at the carbureter. A sediment cup in the pressure line will keep water out of the tank and serve me better than a similar contrivance in the fuel line.

I noticed toward the close of last season that a joint in the exhaust pipe was leaking water into the bilge. Rather than install a new pipe I shall make a plaster of powdered asbestos and wrap the joint with it, winding the plaster with a strip of old canvas and binding it with copper wire. I have effected a similar repair before and know that this will materially postpone the day of purchasing new piping.

One job that I have in mind whether the boat needs it or not is to install a new tiller rope before putting her in commission again. Every time in the past that a tiller rope



has parted in my presence I've been able to reeve in a new line without getting into trouble. I can't count on a continuance of this good luck, and mean to forestall mishap by discarding the old line before it parts.

Other needed repairs and improvements will no doubt come to mind before summer, but the above program will help me until spring comes and the epidemic of fitting-out fever breaks out along the water front.

A. F. L., Huntington, N. Y.

## Alterations and Repairs

**T**O cover this subject in a comprehensive manner so that it will be applicable in whole or in part to most any motor boat let us assume that you and I and the other fellow, all old hands at the sport have purchased, jointly, a 35-foot cruiser. During the winter we will overhaul and repair this boat and its equipment. We do not expect to put in all our Sundays and half holidays working on the boat, but we do expect to go overboard well ahead of the rush, with the boat in first class condition.

We hauled out the first week in November, got her off the car and blocked up for the winter. We immediately scrubbed down the outside with soap powder. This treatment is especially valuable on the underbody, for if the conglomerate mass which collects here is allowed to dry it will require three times the work with wire brushes and sand paper to get a suitable surface for painting.

Our winter covering is of canvas stretched over a ridge pole and rafters and tied down in such a manner as to allow ventilation and easy access to the inside. This much we did as soon as possible. Hereafter, we will work whenever we get a nice day and feel ambitious.

While scrubbing off the green, one of the crew noticed a plank that was almost chafed through. This is our first repair. The damaged plank will be cut between frames and split out in small pieces to avoid doing more damage. Then we will cut off the nails and drive them out of the frames. In fitting the new plank we will endeavor to work to at least one old butt, and under no circumstances will we put in a permanent patch less than four feet long. Should several of the planks be damaged, we will fit longer pieces in order to have the butts well distributed. When smoothed off we will prime the patch with bottom paint and get a coat on the underbody to protect it from the weather.

The skipper is not satisfied with the condition of the white paint, so we will get some of that new paint remover which you mix with water and after applying to the surface wipe off the old paint with burlap. After sanding we expect to look over the caulking and putty, and apply two coats of paint. First an oil coat and then a flat. In the spring we will apply the semi-gloss yacht white, and in succeeding years use the same brand which experience has proven to be satisfactory. The skipper says that good paint over a poor foundation or a mixture of brands, one over the other, will not produce a satisfactory and lasting finish. The deck will be cleaned off and finished with deck paint of a reliable brand if time permits and we feel safe in removing the covering.

Last week the chief engineer refused to labor and inspected the machinery. He found the stuffing box or stern bearing badly worn and the shaft cut. The stuffing box will be bored out and babbitted through the winter. The chief claims that like metals do not produce a good bearing surface and that water is not a suitable lubricant for machinery. The stern bearing will be drilled and tapped for one-eighth inch copper pipe which will follow

up the dead wood through the keel and inside the boat where a grease cup will be attached. The chief expects to feed a soft grease through this device and secure an easy running bearing.

As the propeller has a straight bore and is held by spotted set screws the shaft can be reversed to get a new surface. Had the propeller been a taper fit we would have sent the shaft to New York and had the worn part repaired by building on new metal and turning it up.

While the chief was getting out the shaft the ladies came aboard and incidentally suggested a winter's work overhauling the cabin. They said that no girl could cook in the engine room. The engineer would have to do it, and if he did who could eat the stuff? It is no wonder they objected. The stove was at one side of the motor and the dish closet and ice box on the other. The motor had no covering, and was far from clean. We will please the ladies, for we must have good meals to keep agreeable.

The smokeless kerosene stove will be discarded, and a combination dish closet and pantry after the kitchen cabinet style built in its place. At the side we will build a support for a two-burner wickless stove. The old ice box we will throw overboard and build a new one underneath the cockpit floor so that it can be iced from the outside.

Doors will be provided in the bulkhead for access to the food compartments from the galley. This is not all. The upholstery must be done over in tan and the interior enameled white instead of that horrid dirty old varnish. We agreed and are sending the cushions to be covered. After the motor is overhauled and covered by an easily removed combination table and cover we will refinish the inside while the ladies make new curtains. First the old finish will have to be scrubbed with a strong ammonia solution, neutralized with vinegar and washed with water. Then we can put on two coats of flat white and a coat of enamel.

The engineer will overhaul the machinery with the help of the crew. The program is to dismantle the motor and reverse gear, clean and inspect the parts, grind the valves, refit all bearings, fit two new rings on each piston, using the best of the old ones in the center groove. We will clean out the mud and rust that has accumulated in the water jacket by filling the jacket with a 3 per cent solution of hydrofluoric acid for about three hours. Muriatic acid will also dissolve the rust and sand, but care is necessary in using it as, unlike hydrofluoric acid, it will attack the metal as well. When reassembling the chief will fit new gaskets throughout, and enamel the motor as the finishing touch.

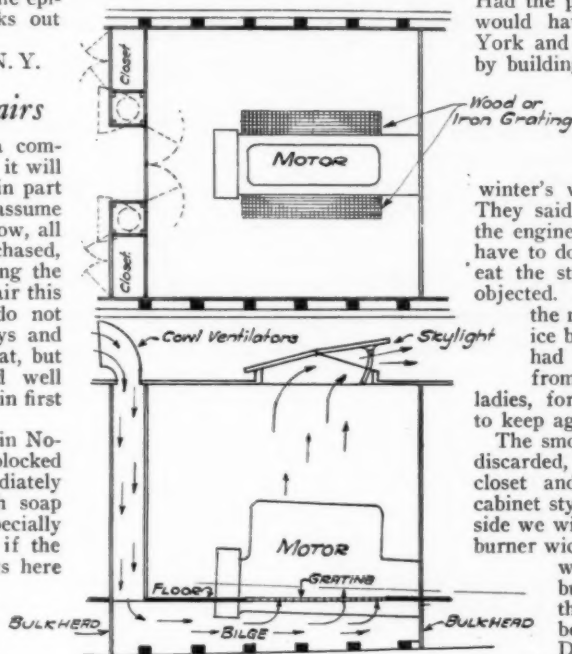
Another one of the things which the engineer is going to overhaul is the electric wiring of the ignition system. The wiring at the present time is in fair order but the high tension current has a tendency to leak through the insulation on the old wires. A new group of high-tension wires will be made on all of which neat terminals will be fitted.

The bilge is now full of grease and dirt. This collection the deck-hand will wash and scrape out. A strong washing powder solution is recommended by the skipper. When dry a liberal coat of creosote or other approved wood preservative will be applied instead of paint.

An oil heater will warm the inside so that we can work comfortably in any weather; and a well insulated cable from a socket in the club will provide plenty of light.

About the time this is finished we will remove the cover, apply the final coats of paint to the outside and go overboard all ready for a try out.

W. B. M., Newburgh, N. Y.



Inlet and discharge vents are necessary for the proper operation of any ventilation system.  
W. B. M.

# Ventilating the Small Boat's Cabin

## How to Take Care of This Difficult Problem in Simple and Effective Ways Fully Described

Answers to the Following Question, Published in the December Issue:

"Explain and illustrate the best and simplest way to ventilate the engine room so as to provide pure, cool air at all times."

### Ventilating the Engine Room

(The Prize-Winning Answer)

**V**ENTILATING engineers have long since discovered that to properly and successfully ventilate a given space, the system must conform to the natural law of gases. Heated air, as we all know, rises, and unless the cool, incoming air is admitted from beneath, there will be an admixture of cool air with the outgoing heated air, to the detriment of the system, and poor ventilation will be the result.

This system of admitting the fresh or cool air to the bottom part of the space to be ventilated can be even more advantageously adapted to the engine room than its already successful use in ventilating buildings. The engine room of the cruising boat is often isolated by bulkheads from the remainder of the boat. At least this should be the case below the floor line. Into this bilge space drippings from carbureter, oil tanks, etc., eventually find their way, and it is from this space that unpleasant odors, if there be any, will emanate. The ideal ventilating system will therefore force fresh air down into this space, from hence it will rise through openings in the engine room floor, and passing upward, leave at the top, thus carrying off gasoline fumes, odors, and heat.

The sketch herewith illustrates how this may be adapted to the engine room of a cruiser. At the forward part of the room a double partition is provided. On each side of the door opening in this partition an air duct is built, as shown in sketch, which ducts run from deck to bilge. On the deck removable cowl ventilators are fitted to discharge fresh air directly into these ducts. There are cowl ventilators on the market which are practically rain-proof and water-proof in average rain storms, by reason of a trap, which bypasses any solid water entering or blown into them. To make sure that, should rain water find its way through, it will do no damage to joiner work in the cabin, it is a good plan to line the above mentioned ducts with light galvanized iron with soldered joints. Any water will then find its way into the bilge, where it can be pumped out with the regular bilge water. The remainder of the space between the double partition can be very conveniently used for closets, as indicated in drawing.

At both sides of the motor a removable wooden or iron grating should be let into the floor, up through which the air current will pass. To properly discharge the air is as important as admitting it. A skylight set athwartships is admirably adapted to this, and can be opened forward or aft according to the direction of the wind. Of course, the cowl ventilators also should be turned in the direction necessary to catch the breeze.

With this system one should have a cooler engine room, a bilge free of odors or vapors, and consequently less fire risk.

W. E. M., Phila., Pa.

### Efficient Ventilation for the Cruiser

**W**ITH the use of a special cowl ventilator (now on the market), a sheet metal stack (which can be built by any tinsmith), and a sheet metal or wood conductor pipe, all of which are shown in the detail, it is an easy matter to properly ventilate the cabin or engine room of the cruiser in any weather.

The following description of a ventilating outfit follows the general design of hull ventilators designed by the author for one of the largest heating and ventilating concerns during the war and with only slight variations was used on board ships of all dimensions which were built at that time.

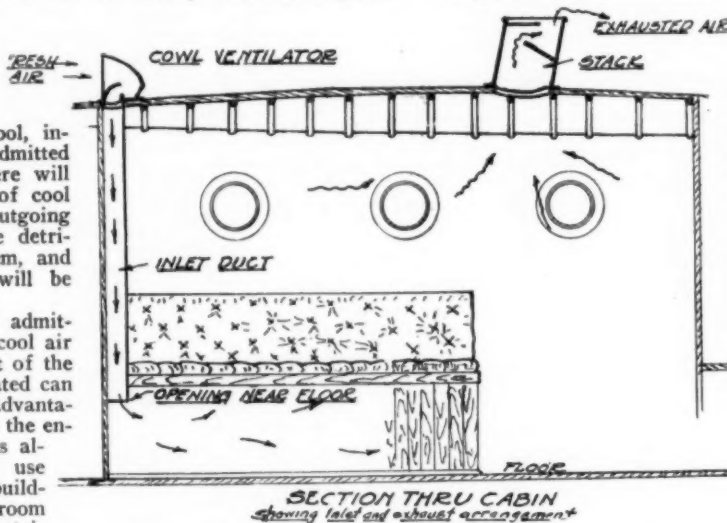
Any system using fans to induce draft

will no doubt improve the ventilation on any boat, but for the small cruiser such an outfit is either too costly or undesirable in other respects, and it is with this in mind that the author submits the following for those who do not care to install any sort of fan outfit in their boat.

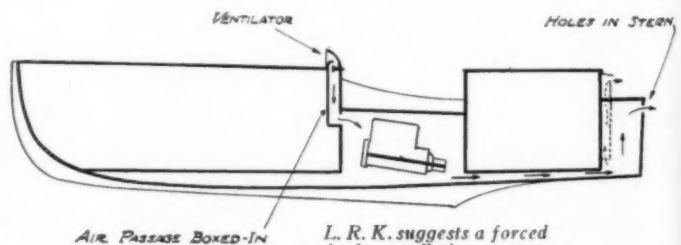
First let us consider the actions of the unit, for with these clearly in mind then each one can build himself an outfit to fit his own cabin and still keep the principle, which makes for good ventilation.

A. The action of ventilator in this case compares with the Thermo-siphon system of circulation used on automobiles, i.e., the cold or fresh air intake is located lower than the outlet or warm and foul air discharge. The greater the difference between the two, the better it will work.

B. When the boat is at rest, at dock or anchor, is one occasion when the elimination of hot, stuffy air is essential for comfort and pleasure, and this cannot be accomplished unless a complete circuit is provided for air to work in. Now if an inlet is provided low down in hull and the outlet as high as possible a circulation will take place by the action of the warm air rising and escaping,



A natural air circulation is induced by the location of the openings, says G. A. S.



to be replaced by cool air which will be drawn in at a low inlet.

C. When the boat is running in a sea way, and everything must be closed down tight, is another time when proper ventilation is needed badly. Unless circulation is easily induced it is almost impossible to get the fumes out of the cabin. This again can be easily overcome with a low inlet which permits a flow of air to sweep across the floor and clear the air by the action of higher velocity than can possibly be produced where circulation is not complete.

D. The use of spray-proof cowl and exhaust stack are essential, as they permit of open ventilation in weather when ports and hatches must all be closed.

In cruisers of more liberal dimensions, which carry storage batteries, and where expense is not such an important item, the addition of a small fan or blower installed in the inlet pipe will prove an important addition for comfort's sake, also the addition of a heater in the inlet will add wonderfully to the comfort, especially in the colder climates, by furnishing warm fresh air in place of the foul gas-laden air typical of a closed cabin.

For small cruisers, however, a great improvement will be noticed by installing an inlet as described, and the satisfaction gained will be worth many times the small expense incurred

G. A. S., St. Petersburg, Fla.

### Forced Draft Ventilation

THE location of the engine room will, of course, be the deciding factor in laying out a ventilating system, but in most cases it will be possible to provide an inlet and an outlet to create a circulating flow of air through the engine room. Of course, the engine itself will use considerable air, and in some cases, this air can be piped direct to the carburetor from some outside sheltered point, so that the engine always has pure air, and there is little danger from a backfire into the engine room.

The illustration shows a double cabin cruiser with the engine under the bridge deck. At one side or both, either inside or on deck, as you prefer, is a boxed-in air passage against the bulkhead, with a ventilator at the top, preferably of the kind that excludes water; and opening into the engine room at the bottom. The air enters the room at these points, passes downward under the floor of the after cabin through the space between the frames and floor beams, sweeping out all the damp foul air that usually accumulates there, and then reaching the stern, it passes up and out openings in the transom, near the top.

If the after freeboard is not high, or you are afraid to put holes in the transom, then a boxed-in passage, similar to the forward one can be placed against the after cabin, with an opening near the top as an outlet. This is shown dotted in the illustration. If this method is used, it will be better to extend this passage almost down to the bottom, so that it will have a better chance to pull the heavy gasoline vapors up which lay along the bottom.

A similar arrangement has been tried out in an auto-type runabout. The engine is enclosed forward, with a ventilator into this compartment. The air passes down and under the entire floor of the cockpit, and out through several long narrow slots near the top of the transom. It keeps the bilge clean smelling, removes the gasoline vapors, and helps to prevent dry rot; so all things considered, a system which provides a circulation is preferable.

L. R. K., Phila., Pa.

### Ventilation on the Small Boat

THE usual means of ventilation are by cowl ventilators, mushroom ventilators, skylights, hatches and wind chutes.

A few of the cardinal principles of ventilation are: First, that warm air is lighter than cold air, therefore keep your supply vents as well down into the ventilated compartment as possible. Since warm air rises, place your exhaust vents well up into the compartment. Skylights are good exhaust vents, but poor supply vents.

Second, mild air currents, well distributed, are more effective than strong local currents, so it is better to have several small ventilators than one large one.

Third, gasoline fumes are heavier than air, and tend to collect in the bilges. Arrange for a good circulation of air low down in the engine room and fuel compartments.

It is always best to have a large skylight over the engine room whenever possible, not only for means of ventilation, but for the convenience of installing machinery and as a hatch to receive supplies; it is also a ready exit in times of need.

In case a skylight cannot be installed there should be a suction ventilator or a mushroom ventilator in the place of it.

There should be at least two good sized supply ventilators and two exhaust vents of equal size. Although different types of exhaust vents are used, they should equal the number of square inches across the face of the supply ventilators.

On all bridge deck cruisers where a skylight would be impractical, two or more ventilators should be installed in the forward end of the bridge leading well down into the engine room.

The ventilators should be placed with their mouth up far enough to catch the wind. An open, rather than a ceiled type of structure should be used. As for foul air it can be gotten rid of by boring holes into the tops and bottom of the locker on the sides.

Of course, the lockers or part of lockers used for ventilators should be kept empty, or as near empty as possible, although gas tanks could be placed here without materially hindering the ventilation.

On bridge deck cruisers which do not have lockers installed the cockpit ceiling should be open rather than closed, and the deck flooring should only come to the frames, leaving a space the width of the frames for ventilation.

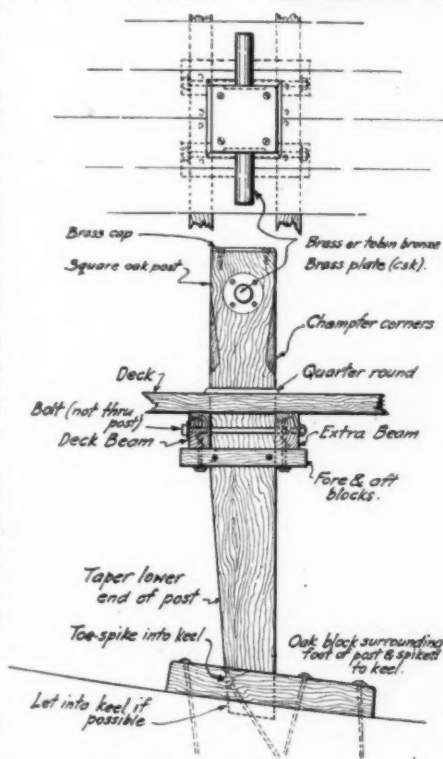
If there are no skylights there should be suction ventilators or mushroom ventilators, which I think everyone is acquainted with.

It is well to remember that air is a good deal like water. If a cabin space is full of air it is going to be difficult to put more air in this space without doing one of two things. We can increase the pressure, which of course is not practical or we can provide an opening for some air to get out and replace it by other air coming in through a different opening without changing the pressure. It is only by a continual change that the air in a small space can be kept wholesome. A peculiar thing about air currents on a boat is that they will move forward better than they

will aft. It is quite practical to install the intakes at the after end of a compartment and the discharge openings at the forward end.

If these principles are kept in mind you will have no trouble in solving your ventilation problems.

D. E. A., Marine City, Mich.



A neat and sturdy design for bitt posts suggested by H. H. P.



# Constructing and Fastening Towing Bitts

Strength and Proper Fastenings Are Necessary in Order to Secure a Sturdy Bitt Post Capable of Towing Another Boat

Answers to the Following Question, Published in the December Issue:

*"Describe and illustrate the best form of towing bitts or sampson posts and the best method of construction and fastening to the hull"*

## Sampson Post Construction

(The Prize-Winning Answer)

THE sketches show a strongly built sampson post which was used with great success upon a twenty-eight foot raised deck cruiser, a post being set at both bow and stern, the latter serving as a towing bitt as well as a mooring post. If much towing is to be done, a towing bitt should be placed as far forward as possible, about midships being the best location, as there is then not such a drag upon the stern when swinging about in answer to the rudder. But as this would be impracticable in most pleasure boats, a compromise must be made by placing the post through the after deck as near the cockpit opening as possible, this position being usually best for clearing the tiller also. Both posts should by all means be carried through down to and spiked to the keel, but if this is absolutely impossible, they are carried below the under side of the deck beams and heavy fore and aft and athwartship timbers secured around them to prevent pulling out or shifting.

For a twenty-five to thirty-foot cruiser, square oak timbers from three to four inches on a side are suitable; they should stand high enough above the deck so that there will be no cramping of the lines. The stern post is put through just forward of a deck beam and resting against the beam, while the bow post is aft of a beam to take the pull of the mooring or anchor line. An extra beam is then run across the other side and bolted to the deck beam with two bolts, which, however, do not pass through the post, but at each side and close to it. Two heavy fore and aft timbers are then placed under these beams and spiked to them and to the post. It is well to bevel the deck opening on the outside, to form a caulking seam, then drive in caulking cotton around the post, finishing by bradding on a light oak half round.

The lower end of the post may be tapered off, and if possible should be mortised into the keel. At any rate, it should be toe-spiked into the keel and a heavy oak block fitted around it and well spiked down with drift bolts. The main portion of the block should be forward of the stern post and aft of the bow post, though it must be remembered that there will at times be considerable side strain also.

The cross bar is made of a length of three-quarter to one-inch brass or tobac tin bronze bar; an old propeller shaft answers the purpose well. Great care must be taken that the bar stands exactly at right angles to the post. To strengthen it and add to the appearance, a circular brass plate is set in flush with the post and fastened with flat head screws around the cross bar at each side. The top of the post is covered by a brass plate, fastened with countersunk screws and with the corners rounded off. Below

the cross bar, the corners of the post are neatly chamfered off so as not to chafe the lines.

H. H. P., Oakland, Calif.

## Substantial Towing Bitts

GOOD, substantial towing bitts or sampson posts are a necessity on every motor boat. They are so easily constructed that one often wonders why so many boats are fitted with some unreliable, inconvenient substitutes such as a small or medium size metal cleat, frequently fastened only with screws which will not hold if given a real test.

When building our boat, two white oak towing bitts were installed in the after deck. These were  $2\frac{3}{4} \times 2\frac{3}{4}$  inches  $\times$  5 inches high, and had a brass pin  $\frac{1}{2}$  inch diameter through each in the fore and aft direction.

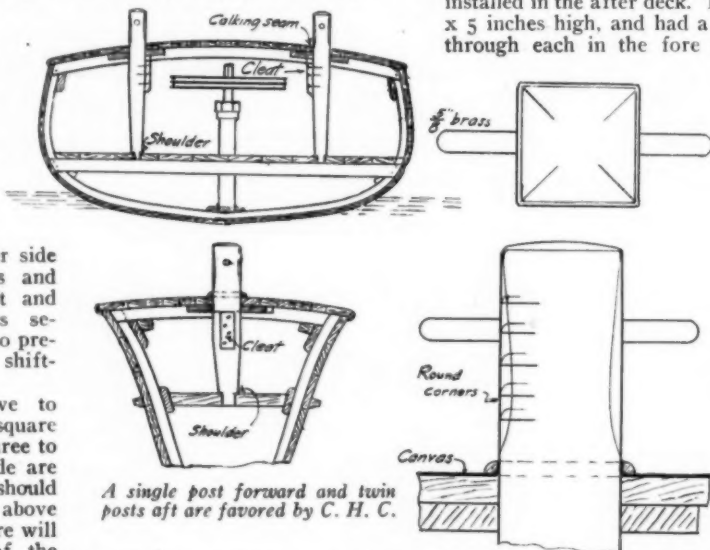
Often these towing bitts are keyed underneath the deck, but it seemed simpler to run them down to the flooring in the stern, and as they were spaced sufficiently far apart to allow the steering quadrant to work between them, there seemed to be no objection to this arrangement, so they were installed accordingly, the lower end being mortised into an extension of the cockpit floor carried under the after deck. The deck was reinforced by a block  $\frac{3}{4}$  inches thick between two beams and a cleat nailed to the side of post prevented it from being raised or drawn out.

Forward there is a single white oak post  $3\frac{1}{4} \times 3\frac{1}{4}$  inches  $\times$   $6\frac{1}{4}$  inches high. The lower end of this is stepped into an extension of the breasthook located at the main sheer line, the boat being of the raised deck type. This post also has a  $\frac{3}{8}$ -inch brass pin through it, in the fore and aft direction.

The towing bitts aft are caulked where they pass through the deck, as this deck has caulked seams, while the one forward, where the deck is canvassed, has a small quarter round moulding to hold down the canvas and make a watertight joint.

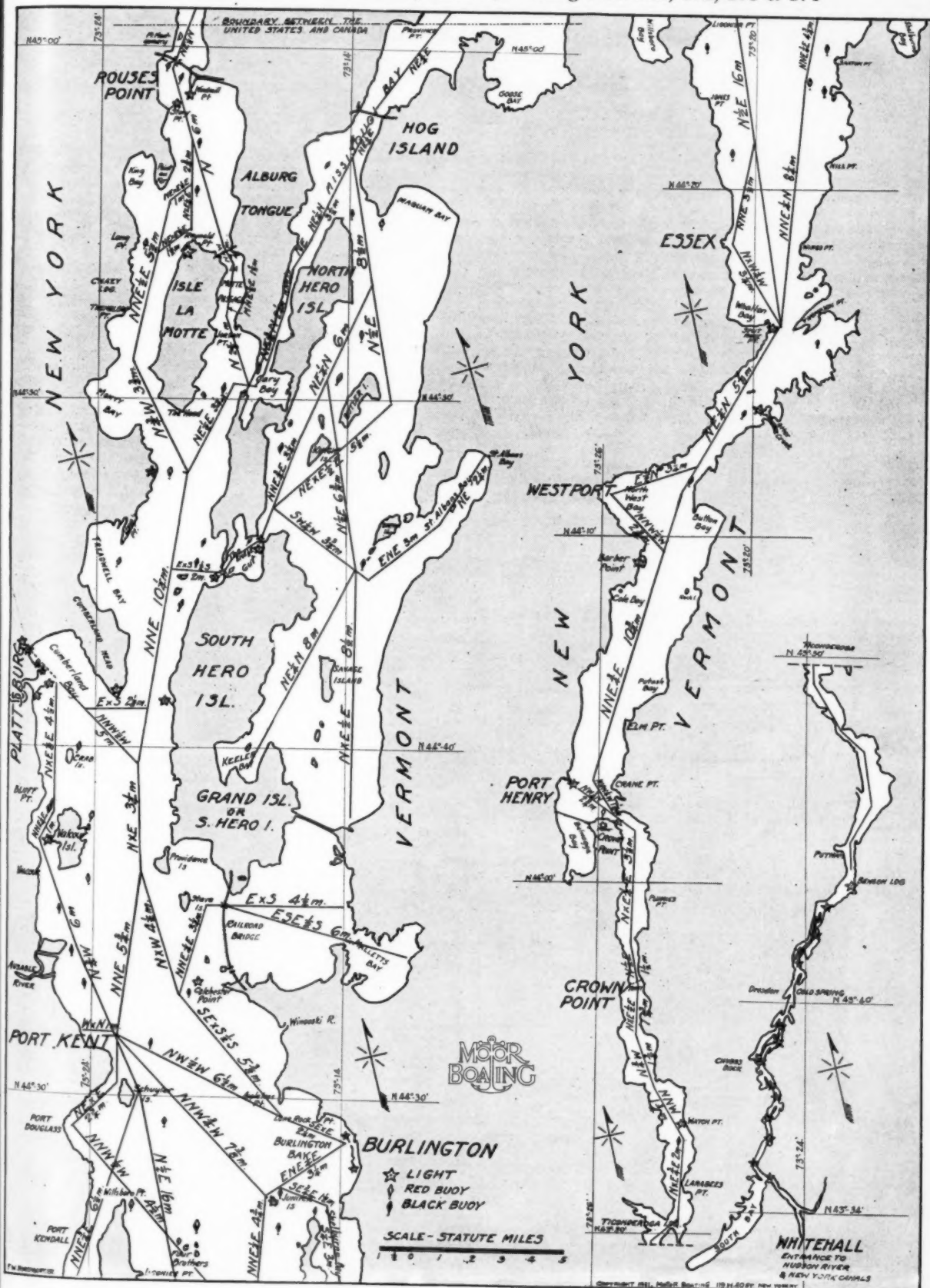
These towing bitts or sampson posts have always been a great source of satisfaction. There is room on them to conveniently and securely fasten all the lines required at any time, and yet they are neat, and add to the finished appearance of the boat, but best of all, when a line is made fast there is a certainty that whatever else lets go, these bitts will remain. The size given should be large enough for a boat up to thirty feet, above which length they should be increased in size proportionately. If made too large and high they look clumsy, and spoil the appearance of the boat. This is not necessary, because the smaller ones, made of good material, are strong enough for every emergency, and are practical for making fast the lines. Well seasoned oak should be secured, and pieces selected that are not sawed so as to include the heart of the timber, as this is almost certain to develop large checks. Wooden posts will be found superior to the metallic variety in appearance and in the security of their fastenings.

C. H. C., Saginaw, Mich.



A single post forward and twin posts aft are favored by C. H. C.

Motor Boatman's Chart No. 16—Lake Champlain, Whitehall to Rouses Point  
For Use with U. S. Lake Survey Charts, Catalog Nos. 171, 172, 173 & 174



# Build A Boat

The First Design in a New Department of MoToR BoatinG Which Will Show Each Month a Design of Small Craft Which Can Be Easily Constructed at Home

## No. 1—A Nine-Foot Sharpie

By A. E. Snyder

**I**N designing this boat the main object was to make it as simple and the drawings as complete as possible so that any one who might want to build a dinghy would not have to make any plans, tables, etc., but just go to work and build according to the drawings which are shown. A large variety of tools is not necessary as is usually the case in most boat building. A man who is handy with ordinary tools can build this boat in two days with the simplest equipment.

The first thing to do is to make the stem and false stem. Take a piece of oak two inches square by four feet long and draw a line down the middle of one side. Be sure of your measurements in every case and you cannot go wrong. When I say draw a line down the middle of one side it must be absolutely in the middle. If the line which is the basis of all measurements for the making of the stem, is not directly in the center, the stem will not be true, which will give the bow of the boat a one-sided appearance. Make the stem absolutely true and you will have a good

start in the work of building this perfect little dinghy.

After the line is drawn down the middle of the two-inch square piece of oak, measure one-quarter inch from each side and draw other lines, plane off the corners as is indicated in the drawing (Fig. 1) until it is V shape, measuring exactly two inches across the back and one-half inch across the front. When this piece is absolutely true saw it in two, one piece will be the stem, the other piece the false stem.

The next in order will be the sides. Cut two boards as laid out in the drawing Fig. 2. Would advise clamping two boards together so that both sides may be cut together, in that way they will both be alike in size.

Now comes the making of the transom (see Figs. 5 and 6). This may be made in either one piece or two pieces. It will be easier if made in one piece and will look a great deal better, besides when the boat is finished the transom can be varnished instead of painted if made in one piece. If the finishing is going to be considered, instead of allowing the heads of the screws to show they can be countersunk and wood plugs set in over the heads, set in glue, this

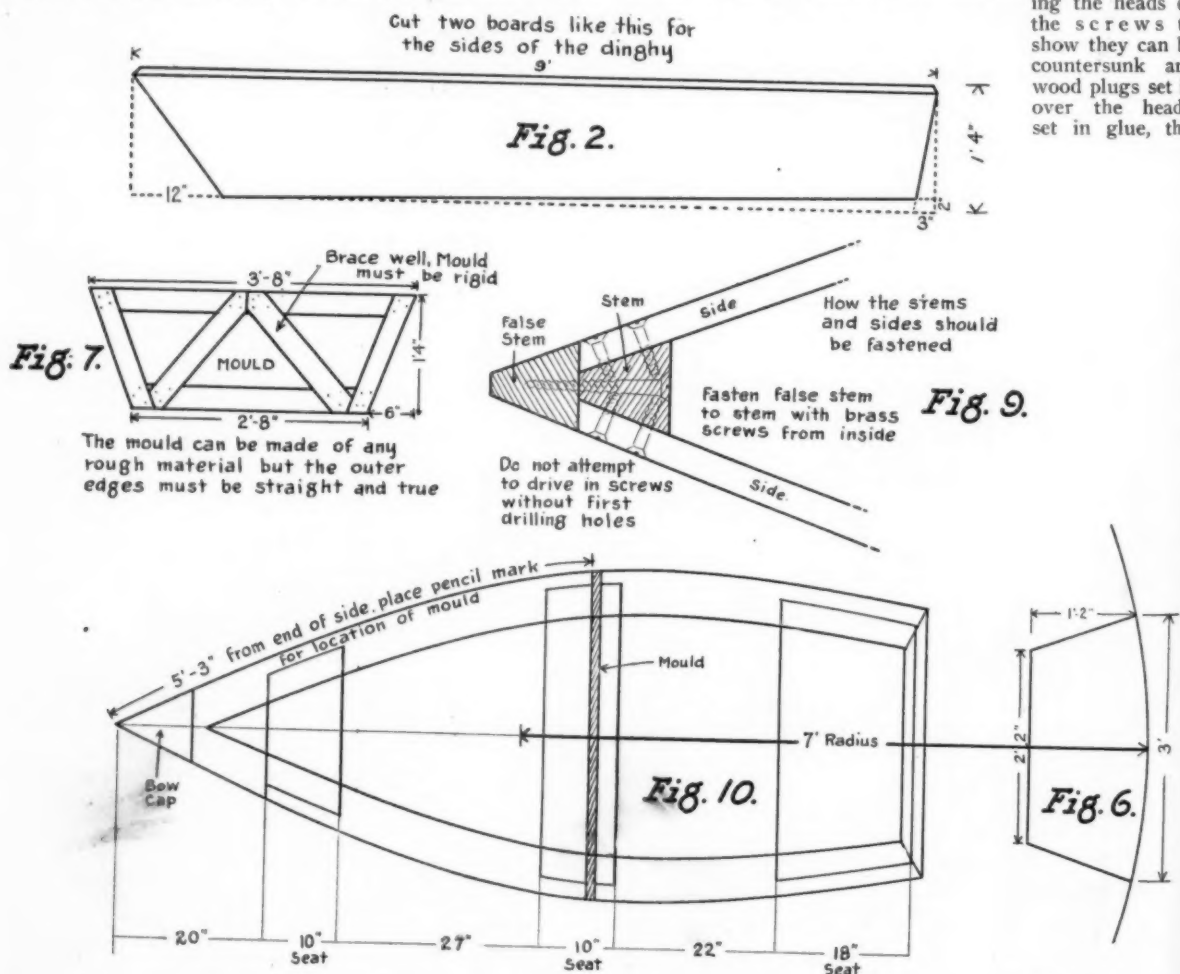


Fig. 2 shows dimensions of sides; Fig. 6 is the transom; Fig. 7, one of the moulds; Fig. 9, method of fastening planking to stem and false stem and Fig. 10 shows the location of the moulds, etc.



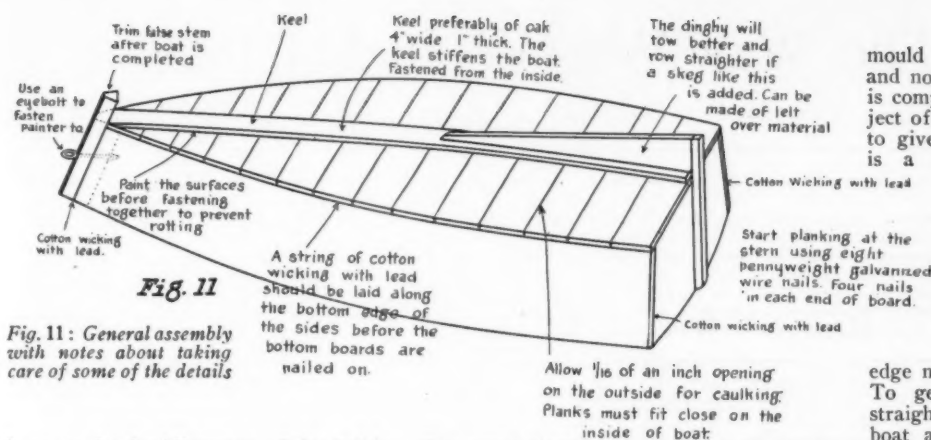


Fig. 11: General assembly with notes about taking care of some of the details

is up to the fastidiousness of the builder. The wood plugs mentioned can be bought in any marine hardware store of any size desired. As the drawings (Figs. 5 and 6) thoroughly explain the making of the transom, there is very little to explain here, except to be sure of your measurements and keep all lines true.

The mould is made next (see Fig. 7). The best way to make the mould (Fig. 7) in order to get it true is to lay out the dimensions on the floor with a piece of chalk. When the pieces are sawed to fit they can be laid out on the floor plan and nailed together.

We are now ready to begin putting the boat together. Fasten the two sides to the stem as shown in drawing (Figs. 8 and 9), first laying several strands of cotton wicking soaked in white lead along the stem. Cotton wicking can be bought in any hardware or marine supply store. Get the ends of the sides, and the front of the stem in one straight line (see Fig. 8) as the false stem is to be fastened against them later on.

Now measure off the location of the Fig. 10. Fasten one side

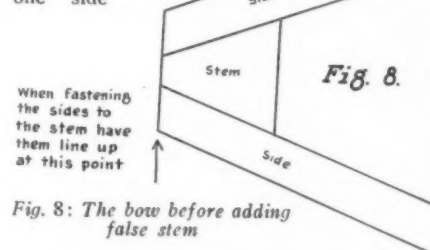
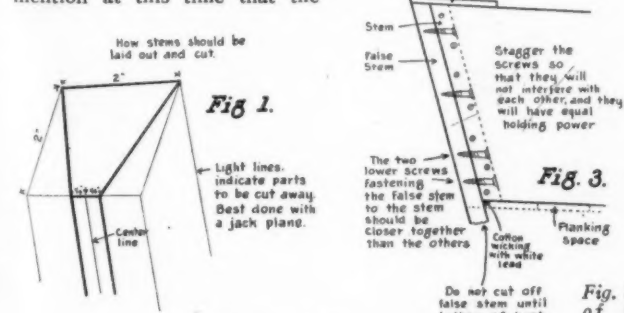


Fig. 8: The bow before adding false stem

plain in fastening the transom except that you will have to call upon your friend again to lend his weight in bending the sides to meet the transom. After this is completed your boat will begin to take on a little shape and you can now get a fair idea of how your little dinghy is going to look.

When the transom is thoroughly fastened, the bottom will be next in order. I may mention at this time that the



The method of building the stem

sides for the mould, see the mould to with two screws, turn the boat over and with the aid of a friend fasten the second side like the first. We are now ready to fasten the transom. There is very little to explain in fastening the transom except that you will have to call upon your friend again to lend his weight in bending the sides to meet the transom. After this is completed your boat will begin to take on a little shape and you can now get a fair idea of how your little dinghy is going to look.

When the transom is thoroughly fastened, the bottom will be next in order. I may mention at this time that the

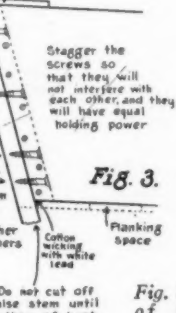


Fig. 3: Method of fastening sides to stem

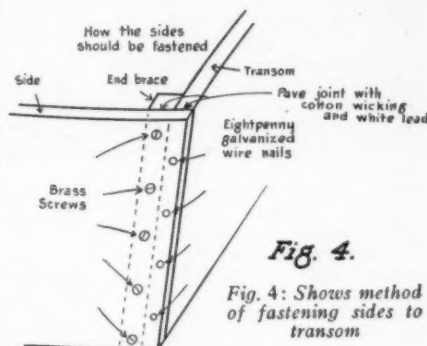


Fig. 4: Shows method of fastening sides to transom

too tight, as the wood will swell when the boat is put overboard. Care should also be taken in nailing the planking, that the nails are driven straight, and that they do not split the sides.

As to the painting, the boat should have at least three coats, the first coat being very thin, using raw oil as a reducer. Oar-locks should be placed three inches aft of the center of the middle seat. Oars 6½ feet long will be suitable for this outfit.

**List of Material**—One piece of oak 2 x 2-inch x 4 feet long for stem and false stem. Two pieces of white pine, clear stock, ¾ x 16 inches 9 feet long for the sides. Five pieces white pine ¾ x 10 inches 9 feet long for bottom and seats. One piece of oak 1 x 4 inches x 9 feet long for keel. One gross No. 10, 1½-inch brass screws flat head. One-half dozen No. 10, 3-inch brass screws for fastening stem and false stem. Three pounds 8 dwt. galvanized wire board nails. One pair galvanized oar-locks. One ball cotton wicking. Small can of white lead paint.

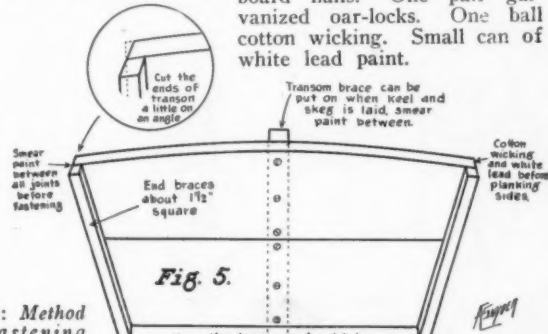


Fig. 5: Transom details

# The Way We Would Do It

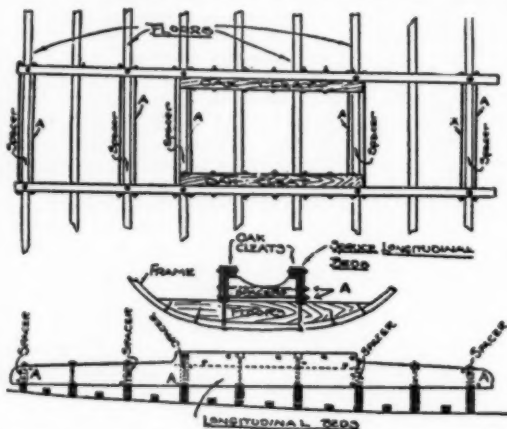
Conducted by F. W. Horenburger and A. E. Snyder

**E**VERY month MoToR BoatinG's staff of experts answers thousands of inquiries about boats, engines, accessories and, in fact, everything marine. There is hardly a branch of the sport or industry on which they are not constantly being asked to give their opinions. They are very glad to do this, as well as to be of whatever service they can to MoToR BoatinG's subscribers and readers.

Quite naturally, many requests for information are received on subjects which are not of universal interest to every motor boatman. This, as well as the fact that it would be a physical impossibility to print answers to all questions received, makes it necessary for us to follow the rule of only printing answers to the few most important and interesting questions. However, we always give a reply by mail, so if you are perplexed about any questions pertaining to boating, don't hesitate to write to "The Way We Would Do It" Editor.

*We have a four-cylinder motor installed in our small run-about but are troubled by considerable vibration when the machine is running. The bore and stroke of the motor are 4½ x 5 inches and it weighs about 600 pounds. The foundation is short and the frames and planking are very light. Can you suggest a way in which this vibration can be reduced?—M. J., Portchester, N. Y.*

The generally accepted method of installing engine foundations is to have these run forward and aft for a considerable length. In some cases a shorter foundation has been found to work out more satisfactory than the long one. In your case since the short one is troublesome we would suggest that it be extended over several additional frames forward and aft and the whole thing properly bolted together about as shown on the sketch. Floors are added over the frames of elm or oak and about 1½ inches thick. The fore and aft pieces, which can be of spruce or yellow pine, are notched over the floors about ½ inch as shown. Spacers are fitted at



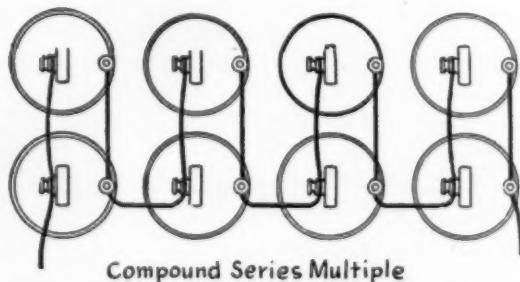
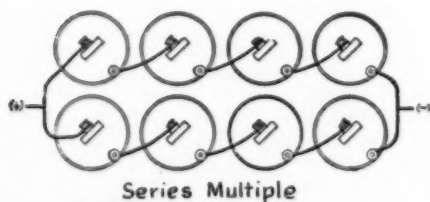
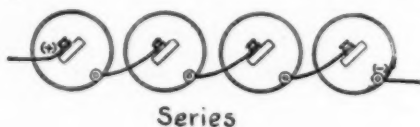
Extending a short engine foundation will help to reduce vibration in many cases

intervals and thoroughly screw-fastened to the fore and aft members. Galvanized iron bolts are driven through the various parts and serve to hold the whole thing rigidly in place. Oak cleats are bolted to the inside of the fore and aft pieces and furnish a hard surface for the engine base to rest upon. The sketch will serve to clear up any further questions. The dimensions between the various parts must of necessity be suited to the motor which is to be used.

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*The make and break ignition system on our two-cylinder, two-cycle motor requires a renewal of the dry batteries at frequent intervals. They do not seem to last for any length of time at all and we suspect there is something faulty with our wiring. How can we increase the service obtained from a set of dry batteries?—P. B. I., Newburgh, N. Y.*

The length of service to be obtained from a set of dry



Generally used methods of connecting dry cells to obtain the greatest efficiency from them

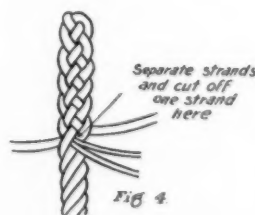
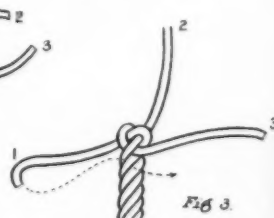
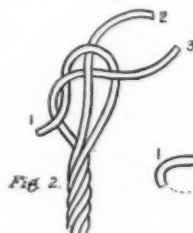
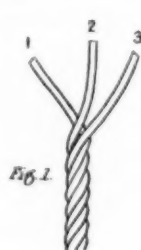


Fig. 5.

The method of making a back splice to prevent a rope from unravelling

batteries is dependent in a great measure on the way in which they are connected and arranged. The ordinary dry cell yields its current at 1.5 volts and it is able to maintain this pressure throughout the greater part of its life. The average make and break ignition system is designed to operate on about 6 volts. Arranging four dry cells in a single series will give a combined pressure of 6 volts, which is sufficient for this type of ignition. A single series of only four cells has the (Continued on page 52)

## Proper Navigation Explained Pictorially

(Continued from page 19)

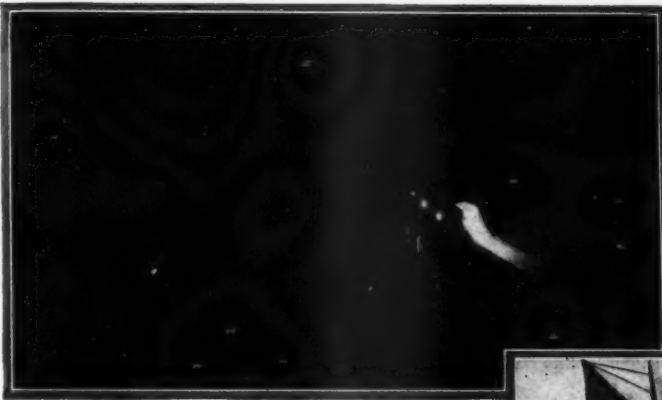


Fig. 22. At night a boat being propelled by both sail and motor is considered a sail boat and follows the rights of way of sailing craft. In the illustration shown above the craft with sail set is supposed to be under both sail and power. She takes the course as indicated by the black line. The vessel on the right which is under power alone, must keep out of the way of the other vessel and follow the line as indicated, although had the vessel on the left been working under power alone, it would have been her duty to keep clear of the motor vessel on the right for obvious reasons. By motor vessels using sail at night in addition to power greatly complicates the ordinary rules of the road owing to this exception as to her status. She should take every means within her power to let other boats know that she intends to observe the rights of a sailing vessel.



Fig. 23. In the daytime, a vessel under both sail and power is considered a motor vessel and must observe only the rules of the road of motor vessels. The addition of sail power does not change her status over that of a motor vessel in any way. A mix-up is likely to result unless the boat under both sail and power is very careful in her navigation and takes steps to make it clear to the other vessels that she is following the rules of a motor vessel which is very often not apparent, unless a great deal of caution is observed.



Fig. 24. Whistle signals are only to be given when danger of collision exists and the boats are in actual sight of each other. When navigating in the fog or at night or any other condition when the other boat cannot be seen, or when the action or course is not clearly understood, then whistle signals should not be exchanged. Whistle signals between motor and sailing vessels or between two sailing vessels should never be exchanged. It should also be kept in mind that the giving, exchanging and acknowledging of whistle signals in no way affect or alter a boat's right of way or legal status. Whistle signals should be considered as a means or indication that the proper rules will be complied with. If a privileged vessel fails to respond to signals, it is not an abandonment of her right of way, nor is an answering signal by a privileged vessel an abandonment of its rights. The vessel which first signals neither gains nor loses any advantage under the rules.

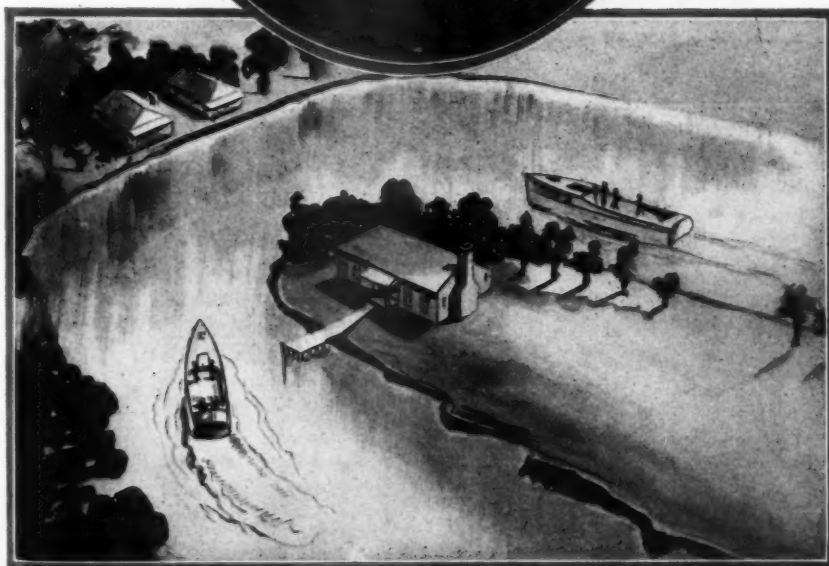


Fig. 25. Boats approaching a bend should give one long blast on their whistles. They should keep to the starboard side of the channel and should not depart from this rule in order to escape unfavorable currents or to save distance. Boats approaching each other around a bend as shown should not be considered as meeting obliquely but should be considered as meeting head on.

(Correspondence Course continued on pages 66, 72, 104 and 106.)



# Engine Rebuilding Specialists

An Extensive Business, the Outgrowth of the Demand  
for Rebuilt Motors Overhauled by Skilled Mechanics

**I**N these days of high prices, the motor boat owner must watch his expenditures very closely. The fact that this is being done is evidenced in the remarkable growth in the business of the firm of Bruns, Kimball & Co. Specializing in the rebuilding of marine engines they have found it necessary to seek larger quarters three times in the last six years. Additional space has been found necessary to keep pace with the expanding business. In these days of keen competition the increase in size and capacity within so short a time is unusual, but responsible for it all is the basic principle of the company—to sell honestly rebuilt and guaranteed engines at a saving to the purchaser.

The rebuilding of these engines is done under the personal supervision of Wm. Bruns, the president of the company, by specially trained mechanics. His long experience in this branch qualifies him as one of the most capable and best informed men in this line.

entered the employ of the Northern Transportation Line of Port Huron, Mich. This was many years ago, more years than he likes to think about, but it illustrates clearly early interests. After various other locations, all connected with the marine industry, he found himself in New York City, where he engaged in a yacht brokerage business with his

brother, under the name of Kimball Brothers. Always an intrepid yachtsman, Mr. Kimball has owned many boats, starting with an 18 ft. hull bought at a cost of \$1.50 when but a lad. Each successive boat purchased has been a handsome outfit. His latest boat, the Audwin, a 60-ft. cruiser, was one of the finest on the river. In 1919 the yacht brokerage firm of Kimball Brothers was dissolved and the present firm of Bruns, Kimball & Company was formed.

The Sales Manager of Bruns, Kimball & Co., J. L. Killean, has just become associated with the firm, his connection dating only from January 1st,



*W. Bruns is president and chief engineer in the firm which bears his name*



*M. C. Kimball, vice-president of the company, has had a lifetime of marine experience*



*J. L. Killean, the new sales manager of the company, comes directly from the Sterling factory*

The executives of the Bruns, Kimball Company are all men of long experience in the marine engine business. The president, William Bruns, is probably the best informed man in this line today. His association dates back over twenty-five years, when the gasoline marine motor was still in its earliest stages of development, when motor boating was in its infancy, and one had to be a very wealthy man to own a power boat of any size. Starting from the very bottom up, his knowledge has not been gained from books, rather the hard school of experience, and as a result he is able today, just as much as he was years ago, to tackle the hardest problem that comes up in the company's shops. Possibly few of those now associated with the marine industry recall the Bruns Motor Exchange, situated in the 10 x 14 shed in the back yard of his home in Jersey City. This formed the humble beginning of the present Bruns, Kimball & Co. From this inauspicious start his next step was the establishment of a small boat yard along New York Bay, on the Bayonne shore front. Here the numerous details connected with boating were taken care of by Mr. Bruns himself. In those days his staff of assistants consisted of just one man. Everything was done personally; he laid the engine bed, put in the shaft log, piped up the engine, and finally packed the stuffing box and started and ran the motor.

The vice-president, M. C. Kimball's contact with boats and boatmen dates back to the time when but a boy he



*J. S. Lobenthal, general manager, has only been with Bruns, Kimball & Co. six years, and might be termed a newcomer in the business*

1921. However, let it not be supposed that he is a new-comer in the marine engine field. He has been identified with it for over fifteen years, dating his first connection with the old Lamb Engine Company of Clinton, Iowa, where starting as a stenographer, he succeeded in working through to the position of purchasing agent and assistant sales manager. Bruns, Kimball & Co. are to be congratulated on the addition of such a valuable man to their staff. Mr. Killean has seen the development of the marine gasoline engine from a period when it was in a more or less crude state to its present condition of refinement.

The general manager, J. S. Lobenthal, as compared with the president and vice-president of the company, is but a new-comer in the industry. His connection with the company dates back to 1914,

when he entered their employ as assistant manager. Previous to this time, however, he was assistant manager of a large marine supply house. His experience there stood him in good stead and it is doubtful if today there is a better informed man in the industry as regards supplies, accessories, etc. It follows as a matter of course that being associated so closely his interests should run to motor boating, and he has owned many fine boats.

Customers of Bruns, Kimball & Co. will remember the genial greeting and hearty handclasp of Mr. Lobenthal, who has rapidly become one of the most popular of the younger element in the marine industry.

# Yard and Shop

Notes of Interest to Both Owner and Manufacturer

## Reliable Kermaths

AN excellent example of reliable service to be expected from Kermath motors is given in a letter to the Kermath Manufacturing Company quoted below: "A friend of mine owns a heavily constructed 38-foot cruiser. A 20 h.p. Kermath was installed late one Saturday afternoon and early the next morning we left Les Cheneaux Islands, Michigan, for Sault Ste. Marie, a distance of approximately one hundred miles. We encountered fairly rough water on Lake Huron and strong currents and head winds on the St. Mary's River. Arrived at the Soo in eleven hours.

"The next day, returning home, we had fine weather until reaching Lake Huron. Conditions then were anything but favorable. We made the return trip in ten hours. I feel that this was a severe test on a brand new motor without any breaking in whatever and, considering the heavy boat, the performance was marvelous. If a motor ever made real friends, old Kermath sure did it on that cruise."

## Of Interest to Naval Reservists

All members of the Naval Reserve Force will be interested to learn that any matters in connection with their membership which they would like to have taken care of, for example, non-receipt of retainer pay, Liberty Bonds on which they have made payments, Victory Medals, War Service Certificates, unsettled claims, etc., will be carefully looked after if they will communicate with *The Naval Reservist*, a publication located at 1144 Wilson Avenue, Chicago, Illinois. This magazine is an exclusive Naval Reserve publication and should be of great value and benefit to every member of the Naval Reserve Force.

The aim is to keep the force up to its standard. Feature articles of an instructive nature and great educational value to Naval Reservists appear in each issue.



One of several 64-foot tugboats built by the Richardson Boat Co., North Tonawanda, N. Y., for the U. S. Army for harbor service. They are provided with a six-cylinder 125 h.p. Winton engine

### RACING DATES FOR 1921

- Feb. 10, 11, 12...Fisher Trophy Races at Miami, Fla.
- July 4.....Mississippi Valley Annual Regatta.
- July 9.....New York to Block Island Cruiser Race.
- July 16.....New York to Newburgh and return.
- Aug. 5.....A. P. B. A. Cruiser Championship of America.
- Aug. 11, 12, 13...Fisher Trophy Races at Buffalo, N. Y.
- Aug. 17, 18, 19...Thousand Islands Challenge Cup Races on the St. Lawrence River.
- Aug. 27, 29, 30...Gold Cup, One Mile Championship and Wood-Fisher Trophy Races at Detroit.
- Sept. 3, 5, 6.....Races for British International Trophy, provided challenge is received.
- Sept. 5, 6, 7.....Races at Toronto.

## Prosperous Year for Boat Field Predicted

The Gray-Aldrich Co., Inc., are optimistic about business conditions for this year. They claim that the atmosphere for poor business conditions seems to be clearing now and an improvement in the demand for engine power during the coming year is undoubtedly to be expected.

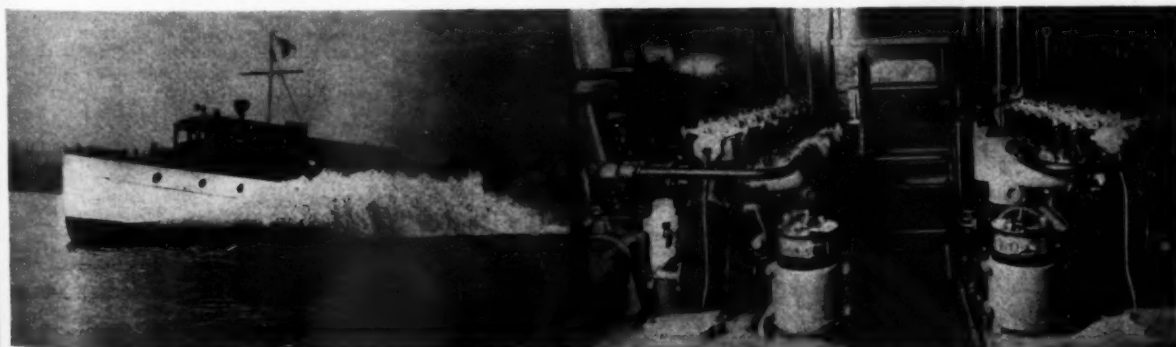
They have increased the lines of non-competing engines so that they are now able to offer a suitable size and type of engine for any boat and always give their client a dependable machine.

The Trenholm Fuel Vaporizer is a new device just being put on the market by the Gray-Aldrich Company, under the Trenholm patents. This new device is designed to operate any four-cycle engine on kerosene or low-

grade fuels, and can be easily installed on any make of four-cycle engine with any standard make of carburetor. It can be set in any desired position with reference to the engine without interfering with its operation. Built in a one-piece casting, it embodies several special features, including an exhaust expansion chamber, an air heating chamber, fuel heating compartment and a gas superheater. There are many other exceptional and new features in connection with this new fuel vaporizer. The Gray-Aldrich Company will be glad to give individual attention or advice to all inquiries.

## A New Socket Wrench

An admirable wrench that will readily fit any nut, bolt or screw about the motor boat engine is being marketed by the Robinson Equipment Company, of Boston, Mass., under the trade-mark of Bet-R-bilt. Ample material is provided in the tool so that the necessary strength is there to start the most obstinate nut or bolt. Its usefulness is greater than any other wrench now on the market.



Out Seattle way they have a new speed-cruiser sensation in Winifred, the beautiful new 43 x 10-foot cruiser, built for G. W. Skinner by the Blanchard Boat Co. An out-and-out western product, this craft is equipped with twin six-cylinder Hall-Scott marine engines of 200 h.p. each, also built in California. Although fully equipped for cruising, Winifred has shown a sustained speed of 30.4 miles and has proven exceptionally seaworthy

## Barker Motors as Standard Equipment

**T**HE manufacturers of the Barker two-cycle motors are pleased with the results of recent tests of their small engines which resulted in their adoption as standard equipment in two models of the standard boats built by the Toppan Boat Mfg. Co. of Medford, Mass. The tests, which were made by the boat builder without any member of the Barker organization being present, gave convincing proof that the Barker motor is easy to start and easy to run and that it delivers exceptional power.

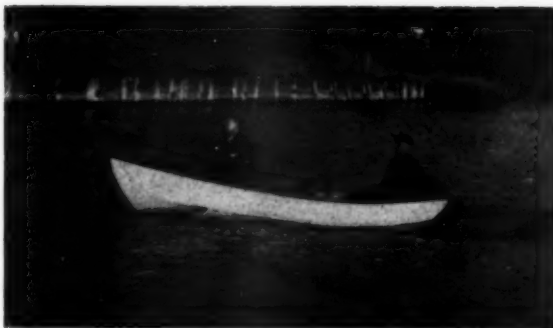
For several months before consenting to test the motors in his boats, A. N. Toppan investigated the reputation of the Barker engine among Barker owners along the New England coast. He reports he did not find a single dissatisfied Barker motor user and his inquiries convinced him this engine is dependable, serviceable and durable.

In tests of the size A motor in the special Toppan 12-foot tender the boat was driven at a speed of  $7\frac{1}{2}$  m.p.h. The size B motor proved equally well fitted for driving the popular three-in-one Toppan dory and this model boat is regularly sold with Barker power plant. This is one hundred

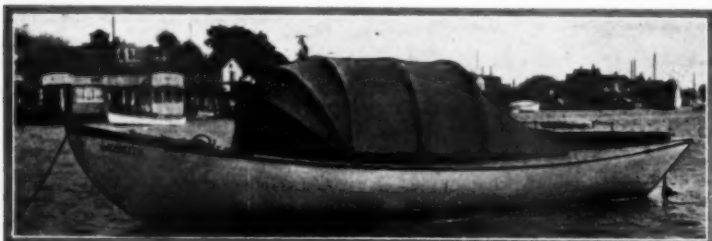
varied line of standardized dories and skiffs the new plant will afford facilities for constructing boats up to 150 feet in length. Construction was started on this plant last fall and it is rapidly nearing completion. A power plant building has been erected of brick and stone and of sufficient size and capacity to take care of the business for several years and future expansion can be taken care of with a minimum of inconvenience. The plant is steam-engine operated with an electric generating equipment to take care of small tools and the lighting system. A private water supply system has been installed and

much grading and fitting up of grounds has been accomplished.

The mill building has two stories. On the main floor at one end will be the saw mill, which will convert logs into lumber. A large supply of oak timber is close by which is well suited to boat work. The lumbering operations conducted by the Cape Cod Co. are quite extensive, as a gang of wood cutters is kept busy the year around. As the logs enter the mill on one side they are converted into lumber and taken out to the storage yard where it is thoroughly air dried and finally stored in lumber sheds to await time for using. From the lumber sheds it will enter the mill building and work through various processes until it is ready for assembly in boats. In the case of small boats, it will enter an assembly shop 50x100 feet long where the boats are set up for construction. As the work progresses it will move along through the painting department, engine installation, electrical equipment, etc., and finally come out a complete product ready for shipment by rail or delivered in the water ready to be sailed away as may be desired. This plant, when it is finally completed, will be able to keep pace with the demand for small boats and it is even hoped to be able to have a selection on hand so that a customer will be enabled to select his boat and sail it away. Larger boats will be built under suitable sheds, but of course will not be able to move along the different processes as the smaller boats do. For still larger boats still a ways will be erected convenient to the mill. The second story of the mill building will be fitted as a laying-down loft without a column or other obstruction. As the buildings are practically daylight shops, the building of boats and getting out of material will be greatly expedited.



*Barker motor speeds Toppan tender*



*Cape Cod dory type day launch with folding top up and down*

per cent record for the Barker since these two models are the only Toppan boats using two-cycle engines as standard equipment.



*Flat bottom skiff equipped with a small motor is practical*



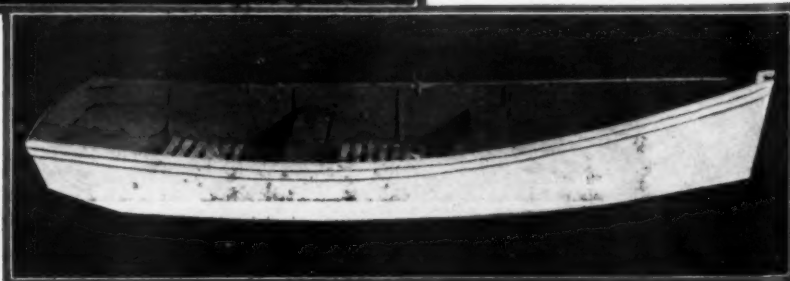
*Flat bottom tenders are supplied in an assortment of different sizes*

## New Plant for Cape Cod Dories

A new plant is being erected on an admirable site for the Cape Code Shipbuilding Corp. at Wareham, Mass. In addition to providing greatly increased facilities for the manufacture of the

Standardized small row-boats in 10, 12 and 14-foot lengths will be built. A 16-foot shallow-draft flat-bottom motor boat, which is admirable for inside use, and the special 20-foot dory launch will also be featured.

*(Continued on page 50)*







*Lyndonia, ahoy!*

Photo by Rosenfeld, N. Y.

## She's Valsparred, of course

**H**ERE'S the *Lyndonia*, a marvel of modern yacht building, owned by Mr. Cyrus H. K. Curtis of *Saturday Evening Post* fame, and built by the Consolidated Shipbuilding Corporation.

Two hundred and thirty feet over all, the *Lyndonia* is the largest and finest private yacht launched since the world war.

Every detail of finish has been carried out to absolute perfection—only the finest of materials used.

Naturally Valspar was the varnish selected—the *Lyndonia* is Valsparred from stem to stern.

Fog, spray, sun, rain and storm—Valspar is proof against them all.

For all marine uses, on all types and sizes of craft, use Valspar, the varnish that won't turn white.

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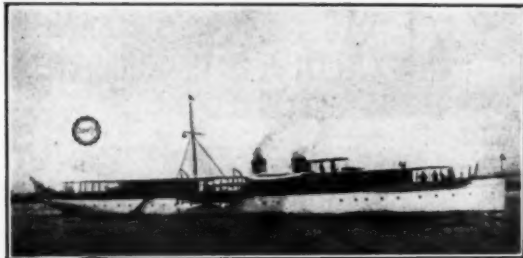
# COX & STEVENS

Telephones:  
BROAD 1924  
BROAD 1375

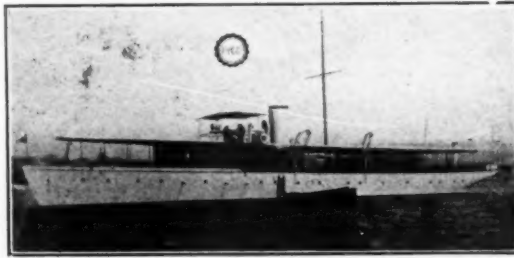
NAVAL ARCHITECTS—MARINE INSURANCE—YACHT BROKERS  
15 WILLIAM STREET, NEW YORK

Complete list of all steam and power yachts, auxiliaries and houseboats available FOR SALE and CHARTER. A few are shown on this page. Plans, photographs and full particulars furnished on request.

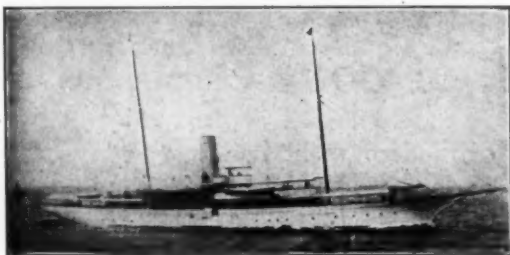
Direct representative now in Florida prepared  
to serve prospective purchasers or charterers.



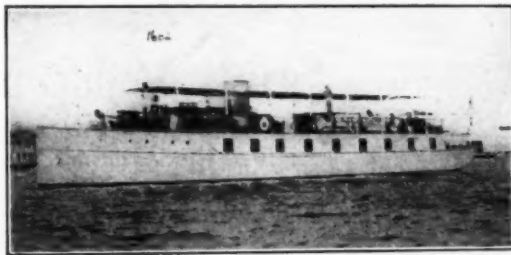
No. 3047—For Sale—Particularly attractive 165 ft. fast oil-burning twin-screw, steel steam yacht. Speed up to 19 miles. Beautifully finished and furnished. Large accommodation includes dining saloon and music room on deck, six staterooms and three bathrooms below aft. Cox & Stevens, 15 William Street, New York.



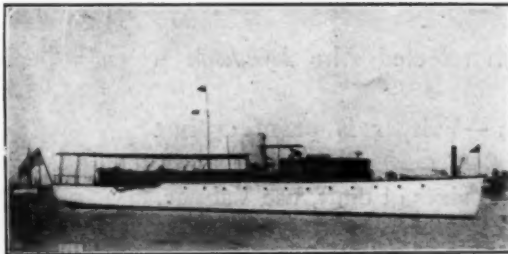
No. 1466—For Sale or Charter—Particularly desirable 140 ft. twin-screw steel cruising power yacht. Speed up to 18 miles; two 300 H.P. Standard motors. Dining saloon and social hall on deck; 3 double and 1 single staterooms, 3 bath and toilet rooms, etc. Recently overhauled thoroughly at large expense. In splendid condition. Cox & Stevens, 15 William Street, New York.



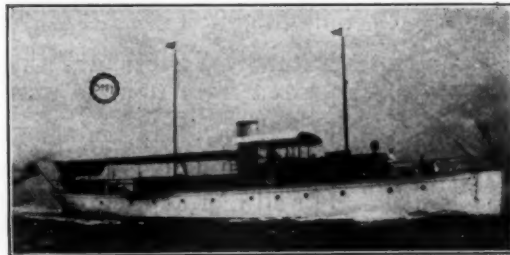
No. 7—For Sale—200 ft. seagoing steel steam yacht. Lloyd's highest rating. Cox & Stevens, 15 William Street, New York.



No. 1662—For Sale—Attractive 90 ft. twin-screw gasoline houseboat. Speed 10-12 miles. Large saloon, four staterooms, two bathrooms. All conveniences. Handsomely furnished. Cox & Stevens, 15 William Street, New York.



No. 463—For Sale—Steel, twin-screw cruising power yacht; 110 x 17.6 x 6 ft. Speed up to 14 miles; two 100/125 H.P. air-starting, reversible Standard motors. Accommodations include deck dining saloon, main saloon, two double and two single staterooms, bathroom, two toilets. Handsomely finished and furnished. Cox & Stevens, 15 William Street, New York.



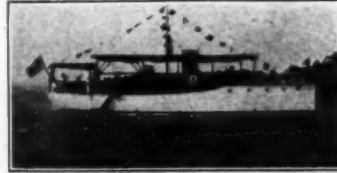
No. 3489—For Sale—Exceptionally high-grade twin-screw cruising power yacht; 90 x 16.3 x 5.2 ft. draught. Built 1917. Speed up to 16 miles; two 115 H.P. Winton motors. Large dining room in deckhouse forward; two double and one single staterooms; bath room and 2 toilets, roomy pantry, galley, etc. Large deck space. Price attractive. Cox & Stevens, 15 William Street, New York.



No. 3151—For Sale or Charter—Particularly desirable twin-screw houseboat; 77 x 17.6 x 3 ft. Speed 11 miles; two 6 cyl. 60-70 H.P. Standard motors new 1919. Large deckhouse containing social hall; main saloon, two double and two single staterooms, two bath and toilet rooms, etc. Handsomely finished and furnished. Cox & Stevens, 15 William Street, New York.



No. 3533—For Sale—Fast 73 ft. twin-screw cruising power yacht. Speed up to 17 miles; two 6 cyl. 125-150 H.P. Winton motors. Dining saloon, two double staterooms, bath and two toilets, galley, etc. Cox & Stevens, 15 William Street, New York.



No. 3255—For Sale—Roomy bridge deck cruiser; 60 x 13.6 x 3.6 ft. Built 1916. Speed up to 11 miles. 40/50 H.P. "20th Century" motor. Completely overhauled 1920. Large saloon, two double staterooms, toilet room, etc. Excellent condition. Cox & Stevens, 15 William Street, New York.

NAVAL ARCHITECTS  
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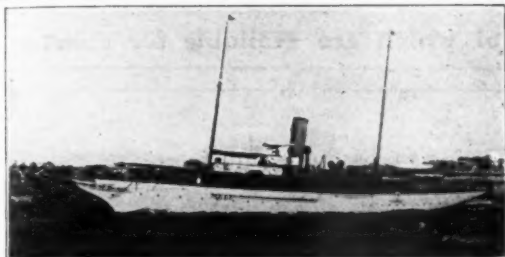
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Plans and specifications for new yachts of any size or type should be prepared now to assure delivery for next year. Have plans of new yachts, all types, on file now.

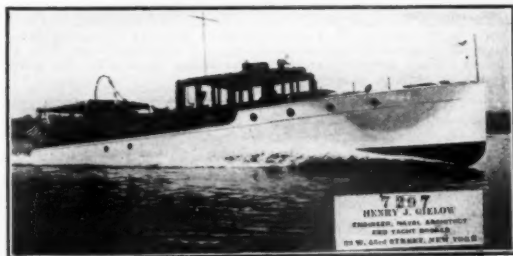
We have a most complete and up-to-date list of steam and motor yachts of all sizes, sail, auxiliary, and houseboats on file in my office, kept constantly up-to-date by a thorough and comprehensive canvass of the entire yachting field from time to time. We are in a position to submit full information on any type of boat upon request.



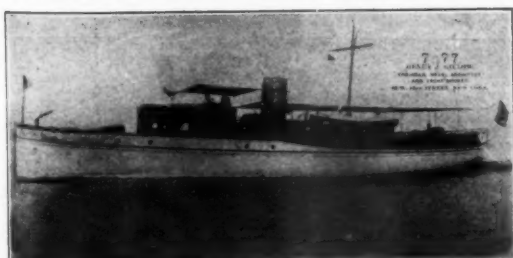
No. 9597—For Sale—Possibly Consider Winter Charter—Handsome 162 ft. seagoing steam yacht, second to none of her size. Finest condition and perfectly appointed. Cruising speed 12 knots. Steel construction, thoroughly overhauled and refitted throughout, 1919. Mahogany and teak trim. Deck dining saloon and music room. Large bridge deck. Two double and four single staterooms, 2 baths. Ice plant, steam heat. Large water supply and liberal cruising radius. Price reasonable for yacht of size and type. Henry J. Gielow, Inc., 25 W. 43rd St., New York City.



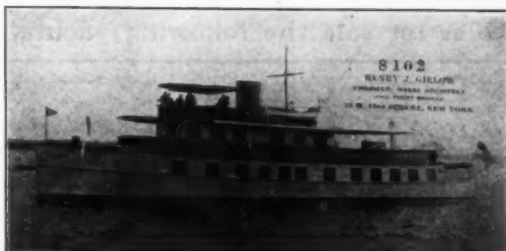
No. 8080—For Sale—Charter—New modern 85 ft. twin-screw cruising houseboat. Deck dining saloon and galley, 2 double, 3 single staterooms. Hot water heat, 3 baths. Shoal draught makes attractive type Florida cruising. Two 50 horsepower motors give speed 10 miles. Good sea boat. Henry J. Gielow, Inc., 25 W. 43rd St., New York City.



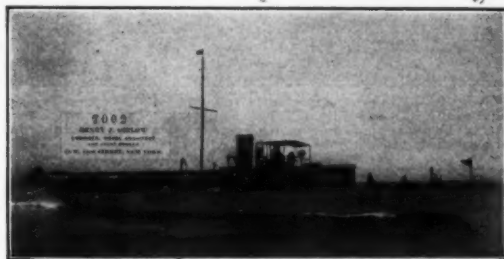
No. 7297—For Sale—Attractive high grade 48 ft. twin-screw express cruiser. New Van Blerck motors and upholstery 1920. Speed 21-24 miles. Excellent sea boat though shoal draught, and desirable for Southern and Northern use. Two cabins and separate galley. Crew forward. Bridge deck enclosed in removable glass partition. Cockpit aft. Modern in all appointments. Henry J. Gielow, Inc., 25 W. 43rd St., New York City.



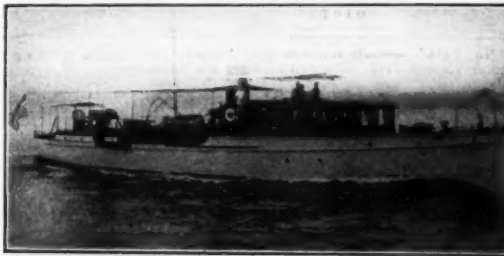
No. 7077—For Sale—Particularly desirable 80-foot twin-screw power yacht. "20th Century" 50/60 H.P. motors, new 1919. Deck dining room, two double staterooms, bathroom. All furnishings and equipment new 1919. Excellent condition. Henry J. Gielow, Inc., 25 W. 43rd St., New York City.



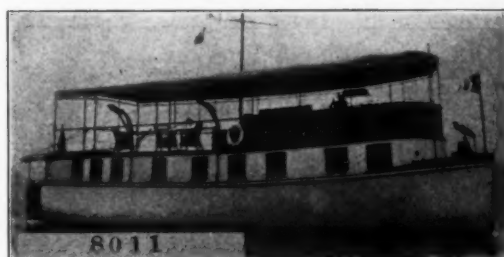
No. 8102—Sale—Charter—New 98 ft. cruising houseboat located Southern waters. Modern in design and appointments. 100 horsepower motor gives speed 10 miles. Hot water heat. Deck dining saloon and living room, also owner's state room. Below are 2 double and 4 single staterooms. Most desirable type of Florida cruiser. Henry J. Gielow, Inc., 25 W. 43rd St., New York City.



No. 7002—For Sale or Charter—Finest yacht of type available. 138 ft. twin-screw power yacht. Two 300 H.P. Standard engines. Dining room and social hall on deck; three double and one single staterooms; two bathrooms. All furnishings new 1920. Henry J. Gielow, Inc., 25 W. 43rd St., New York City.



No. 7040—For Sale—Bargain—Modern Lawley built 96 ft. twin-screw motor yacht, 15 ft. beam; Standard motors, speed 11 miles. Deck dining saloon, 2 double staterooms, accommodate seven. Economical, can run with 4 crew. Able sea boat. Furnishings new 1919, includes player piano. Large bridge and good deck space. Fine condition. Henry J. Gielow, Inc., 25 W. 43rd St., New York City.



No. 8011—For Southern Charter—Most commodious 51-foot cruising houseboat available. Standard motor. Large deck space. Two double and two single staterooms. All good condition. Henry J. Gielow, Inc., 25 W. 43rd St., New York City.



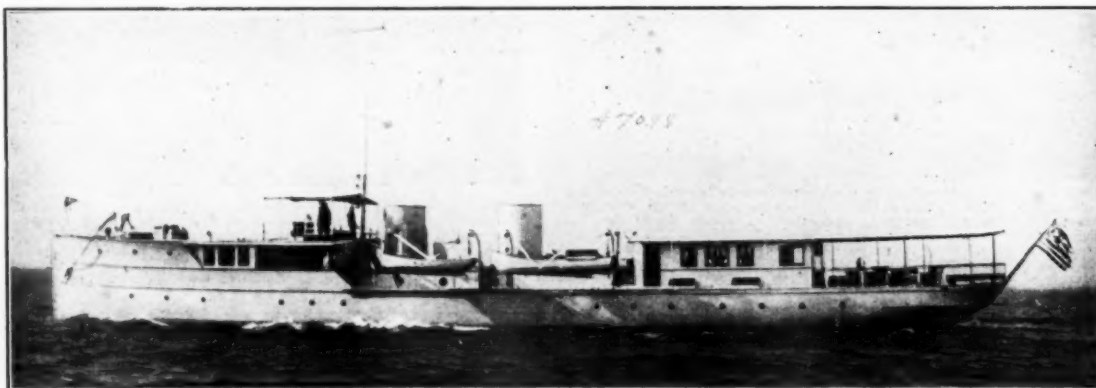
# TAMS, LEMOINE & CRANE

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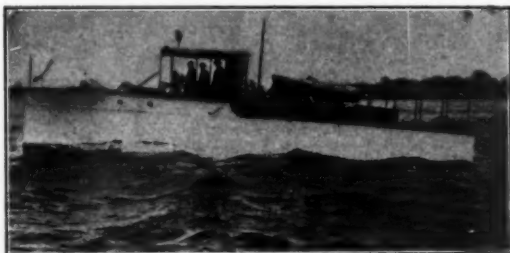
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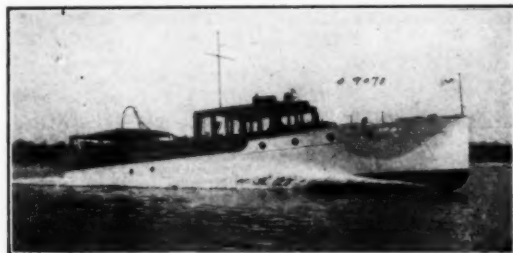
Offer for sale the following yachts, some of which are available for charter



No. 7098—Unusual opportunity to purchase the largest cruising steel motor yacht afloat—140 ft. overall—19 ft. 6 in. beam—6 ft. 6 in. draft. Designed by Tams, Lemoine & Crane and built by Lawley. An exceptionally able yacht. Triple screw having three 6 cylinder Speedway motors. Gasoline consumption low. Speed 16 miles per hour. Large cruising radius. Has very commodious owners' quarters attractively fitted and furnished. In absolutely A-1 shape throughout.



No. 7474—Sale—Brand new fast cruiser; 2-6 cylinder Sterling motors; speed 21½ miles; all modern conveniences.



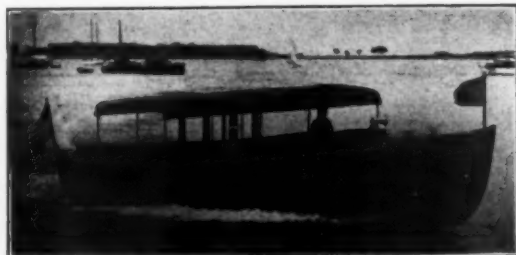
No. 9078—Sale or Charter—Fast 48 ft. express cruiser in commission. Immediate delivery—2 new 6 cylinder Van Blerck motors. Good accommodations. Thoroughly overhauled this year in all departments.



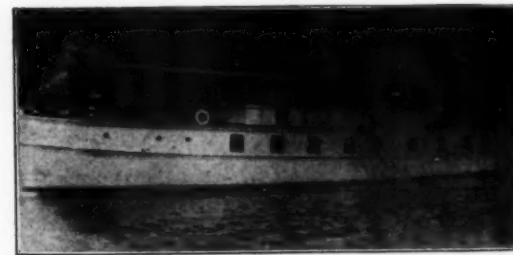
No. 8192—Sale—Charter; most desirable raised deck cruiser available; practically new, 81 ft. x 13 ft. x 5 ft. draft. Speed 13 miles, electric light, hot water, heat and refrigerating plant.



No. 1902—Sale or Charter—In Florida. Most commodious houseboat of her length available; 64 ft. x 17 ft. 6 in. x 3 ft. 2 in. draft.



No. 8949—For Sale—38 x 35 x 8 x 3, life boat type, with small cabin forward. Large cockpit. Powered with 6 cylinder Sterling. Inspectable near New York. Price reasonable.



No. 1927—Sale—Charter—Very desirable, twin screw houseboat; 5 staterooms, 3 bathrooms, dining saloon, lighted by electricity and hot water heat.

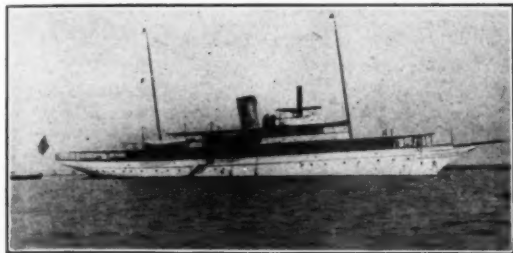
**EDWARD P. FARLEY CO.,**

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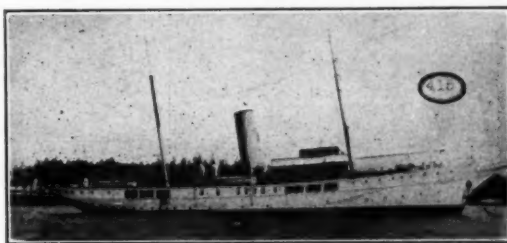
Naval Architects, Yacht Brokers, Surveying, Marine Insurance

We have a complete list of all Steam and Power Yachts, Auxiliaries and Houseboats which are offered for sale and charter

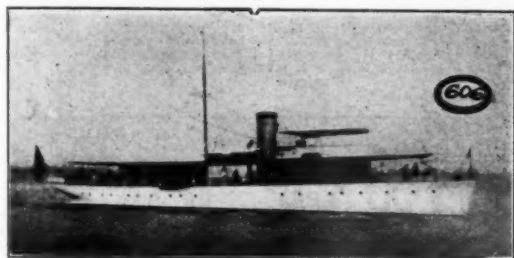
Plans, Photographs and full particulars furnished on request.



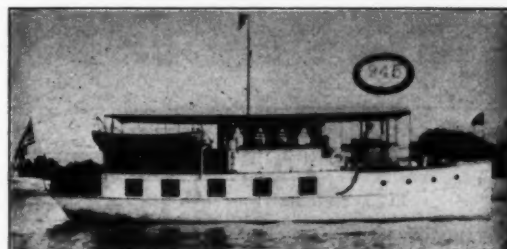
No. 111—For Sale—188 ft. steel steam yacht. Wonderfully well appointed. Excellent condition. Commodious accommodations. Modern in every particular.



No. 415—For Sale or Charter—Thoroughly modern twin-screw steel steam yacht. 210 ft. x 32 ft. x 13 ft. draft. Recently built in Scotland to Lloyd's highest class. Excellent seaboat. Equipped for extensive cruising. Cold storage, wireless, etc. Cruising speed 11 to 12 knots.



No. 606—For Sale—Modern steam yacht, 123 ft. x 17 ft. x 6 ft. draft. Speed up to sixteen miles. Three single and two double staterooms. Dining and social hall on deck. In excellent condition throughout. The finest yacht of her size available.



No. 945—For Sale—Mathis 52 ft. houseboat. Launched in December, 1919. Is practically a new boat. Furnishings, etc., are of the best.



No. 573—For Sale or Charter—91 ft. x 14 ft. x 4 ft. 3 in. Twin-screw gas yacht. Winton motors. Speed up to 17 miles. Roomy accommodations with every convenience. In excellent condition, fully equipped, modern.



No. 880—For Sale—56 ft. x 11 ft. 6 in. x 3 ft. twin-screw express cruiser. Completed 1917. Van Blerck motors. Guaranteed speed 25 miles. Attractively arranged and furnished.



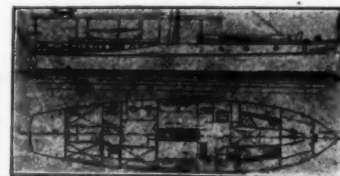
No. 548—For Sale—Attractive bridge deck power cruiser. 65 ft. x 13 ft. x 4 ft. 8 in. draft. Thoroughly modern and splendid seaboat. Bargain for immediate sale.



No. 986—For Sale or Charter—1919 twin-screw cruiser. Houseboat type. 62 ft. x 15 ft. 4 in. x 2 ft. 6 in. Sterling motors. Speed 12 miles. Attractively arranged and furnished. Excellent for Southern or River use.



No. 451. For Sale—85 ft. x 15 ft. 6 in. x 4 ft. power yacht. Attractively furnished throughout. Equipped for extensive cruising. Two double and one single staterooms. Located Great Lakes. In very good condition.



No. 550—For Sale—Raised deck cruiser. 56 ft. x 13 ft. 6 in. x 3 ft. 5 in. draft. Unusually large and comfortable accommodations. Three double staterooms, large main saloon, galley, etc. Finished throughout in the best manner and fully equipped for extensive cruising.

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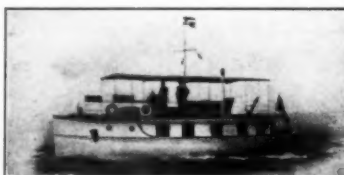
Telephones  
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Yachtbroco, Newyork**154 Nassau St.****New York City**

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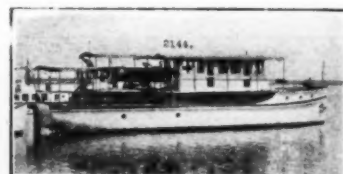
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No. 2081—58 foot cruiser. Two double staterooms, main saloon, with two Pullman berths, etc. Two toilets. Mahogany finish. 50-54 H.P. Standard motor. Speed up to 14 miles. Electric lights, etc.



No. 1490—40 foot houseboat cruiser. Double stateroom, main saloon, etc. 25-35 H.P. motor installed this year. Electric lights, etc. Located in Florida.



No. 2144—60-ft. yacht. Draft 2 ft. 8 in. Two double staterooms, main saloon, large deck saloon, bath, etc. 60 H.P. Sterling motor. Speed, 10-12 miles.



No. 4322—Sale or Charter—Twin-screw 85 foot power houseboat. Five staterooms, dining saloon, three baths, etc. Speed 10 miles.



No. 2031—40 foot cruiser, V-bottom. Double stateroom, main saloon with two upper and two lower berths. 60-85 H.P. Sterling motor. Speed 15 knots. Electric lights, etc.



No. 2136—Sale or Charter—Twin screw 80 foot power yacht. Two double staterooms, dining saloon, etc. Two 220 H.P. Standard motor. Speed up to 21 miles.

Telephone

1170 Whitehall

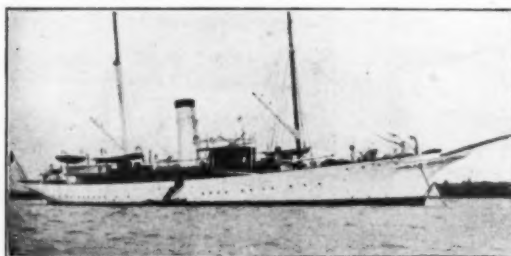
Cable Address

Windward, N. Y.

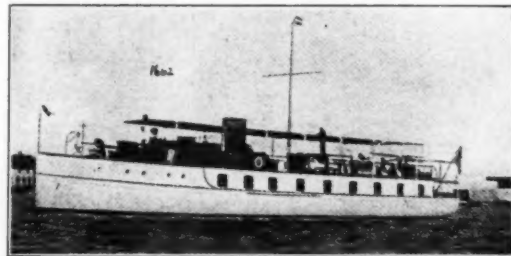
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also mercantile vessels of all classes.*Let us know your requirements*

No. 5266—Steel ocean going steam yacht. Length 230 ft. Built to Lloyds highest rating. Frank Bowne Jones, Yacht Agent, 29 Broadway, New York.



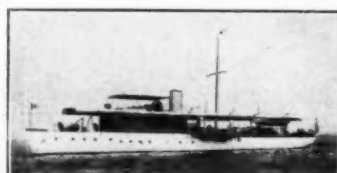
No. 5997—90 ft. power house yacht. One of the most desirable yachts of the type. Available for purchase or charter. Frank Bowne Jones, Yacht Agent, 29 Broadway, New York.



No. 4079—70 ft. auxiliary cruiser. Lawley built. Winton engine. Reasonable price. Frank Bowne Jones, Yacht Agent, 29 Broadway, New York.



No. 1212—One of the fastest and largest of the express yachts. Speed over 30 miles. Twin-screw. Perfect condition. Frank Bowne Jones, Yacht Agent, 29 Broadway, New York.



No. 2530—110 ft. steel power yacht. Twin-screw. Best design and build. Frank Bowne Jones, Yacht Agent, 29 Broadway, New York.



WILLIAM GARDNER  
F. M. HOYT

## WILLIAM GARDNER & CO.

PHILIP LEVENTHAL  
W. T. HOLLEY

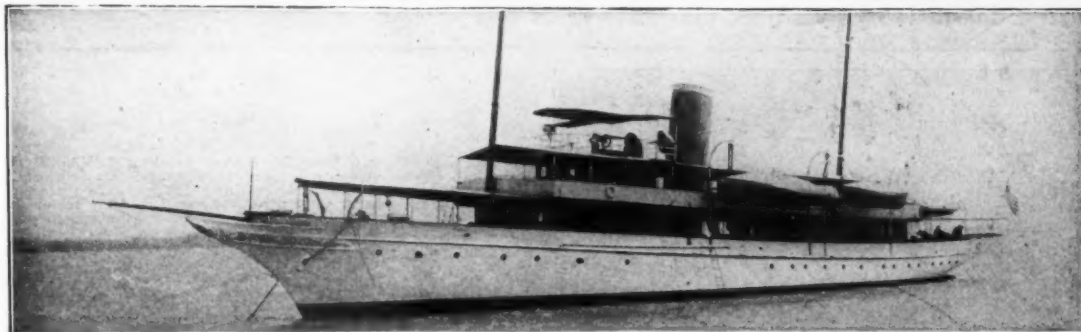
Naval Architects, Marine Engineers and Yacht Brokers  
1 Broadway, New York

Telephone Call  
8638 Bowling Green

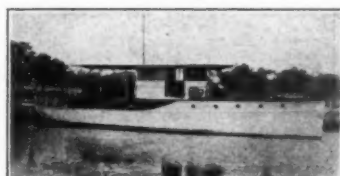
Cable Address  
Yachting, N. Y.

We have a complete list of Yachts of every description for sale and charter

Plans, Photos and full particulars furnished on request



No. 659—Steel steam yacht, deep sea type, 187 x 24 x 10. Of best construction throughout, and of recent build from our designs. Promenade deck full width of boat. Has two large deck houses, with chart house and Captain's room on upper deck. Finely appointed owner's and guests' quarters. Was not used in Government Service. In best possible condition and should be seen to be fully appreciated. Inspection invited.



No. 2283—Raised deck cruiser, with good sized deck house, 60 x 13.6, six cylinder Standard, first class condition. Located Florida.



No. 40—H—Twin screw houseboat, 77 x 18.6 x 3. Two Twentieth Century motors. Ideal boat for Southern use. Location Florida.



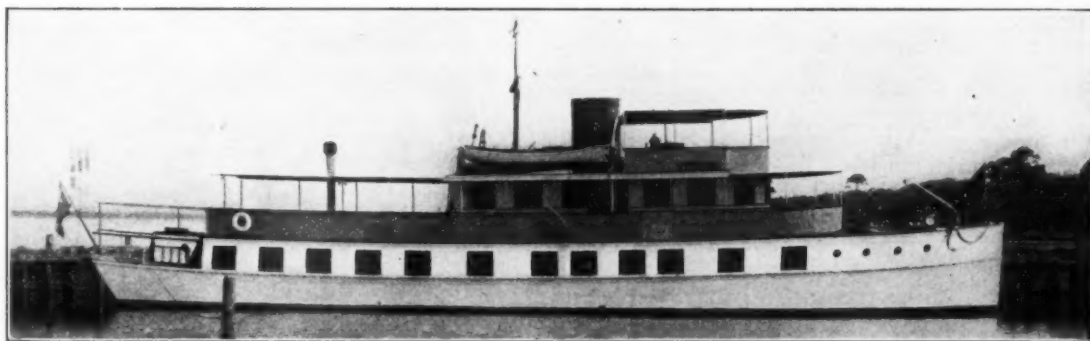
No. 2044—Bridge deck cruiser, 63 x 13.6 x 4. Twentieth Century motor, 4 cylinder. Speed 11/12 miles. Attractive interior arrangement.

### "HOUSEBOAT CRUISER SIESTA"

SALE OR CHARTER

NOW IN COMMISSION

PALM BEACH DELIVERY



Modern in design and appointments. 100 H.P. motor gives speed of ten miles. Hot water heat, 4 K.W. electric plant, all rooms equipped with fans. 1,500 gallons water, two tons ice. Deck dining saloon and living room. Also owner's stateroom with bath. Below are two double and four single staterooms, with three baths. Deck house finished in mahogany, below, white paneled with mahogany furniture and trim. Each room has beds and windows. Headroom seven feet. Wonderful opportunity to charter this shoal draft cruiser. Dimensions 100 ft. long x 20 ft. wide, draft less than three feet. Siesta was designed and built by McCoy Bros., builders of the most practical boats ever constructed for Florida waters. Ask your broker or McCoy Bros., Palm Beach, Fla.

## THE MOTOR BOATING MARKET PLACE

The rate for "For Sale" and "Want" advertisements is 6 cents per word, minimum \$1.50. If an illustration is used, the charge is as follows, which includes the making of the cut:

Cut one inch deep, one column wide..... \$ 5  
Cut 1½ inches deep, 1½ columns wide..... \$10  
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Terms: Cash with order.

### Opportunities for the Motor Boatman

Before you buy or before you sell examine the exceptional buying and selling opportunities under this heading. They comprise the best offers of the month. Please mention MoToR BoatingG.



"Snapshot"



No. 1862—For Sale—Bargain. Attractive and comfortable Herreshoff cruiser in excellent condition, 83 x 14 x 4.6 ft. 1916 medium duty Van Blerck with starter. New Delco lighting. Speed 8 to 10 miles. 1 single, 2 double staterooms, 4 berths in cabin, 2 toilets and bath; galley and saloon on deck. 4 berths and toilet for crew aft. Launch and dinghy. Ideal Summer home. Fully found. John G. Alden, 148 State St., Boston, Mass.

For Sale—1920 practically new 36 foot Elco mahogany express runabout. Address H. F. Keil, Jr., 401 E. 163rd St., New York City.

Wanted—Power cruiser 36-40 feet, 8-12 miles max. speed not over six years old. Fully found and in first class condition. Will pay reasonable price for a used boat based on before war cost. Also consider auxiliary yawl. Submit full details, specifications and where may be inspected. Address—W. S. Kimball, 5915 Center Avenue, East Liberty, Pa.

Wanted—Motor boat with or without engine. Will exchange Overland Model 83 truck; just been overhauled. W. M. Hansen, Box 222, Niles, Mich.

For Sale—1 2 KW. direct connected Carlisle & Finch electric outfit, with arc search lamp. Percy M. Child, 1110 14th St., N.W., Washington, D. C.

For Sale—Several mushroom anchors, red leaded, weight 156 lbs. Net. \$12.50 each f.o.b. Washington, D. C., Percy M. Child, 1110 14th St., N.W.

For sale—1 pair Bausch & Lomb prism binoculars, 6 by 30 power. Just the thing to complete your motor boat equipment. Buy now for next season. Percy M. Child, 1110 14th St. N.W., Washington, D. C.

Use "SNAPPER" ENGINES for your small boat. They are a big little engine built by The Automatic Machine Co., Bridgeport, Conn.

For Sale—9 foot Davis yacht dingey. Also 4 in. Baker binnacle compass. Address "N" Mutual Life Building, Buffalo, N. Y.

For Sale or To Let—A modern boat plant, with complete machine shop, two marine railways, three gasoline stations. Best location in America, near New York. Address, Paine Statistical Corporation, 756 Broad St., Newark, N. J.

Save money by getting our motor list of 1½ to 60 H.P. and accessory list. We guarantee all our rebuilt motors. Jesiek Boat Company, Grand Rapids, Mich.

**TRIMOUNT WHISTLE BLOWER** **TRIMOUNT ROTARY HAND**  
**OUTFITS** **BILGE PUMPS**

Blower runs by friction. All bronze composition. contact with engine fly-wheel. Whistle of brass, feet. A lifelong convenience. Made in 3 sizes.

**TRIMOUNT ROTARY POWER CO.**  
20 Heath Street Boston, Mass.  
(Factory: 292 Whiting Ave., E. Dedham, Mass.)

Americans—Your money is worth 15% more when spent in Canada than in the United States. Therefore we can deliver a boat to you for less than you can buy it at home. You also save the luxury tax. We are the largest builders of Standardized "V" boats in Canada, and invite correspondence. Pyke Motor & Yacht Co. Ltd., Montreal, Canada.

For Sale—New motor boat runabout. Mahogany. 20 miles hour. 30 x 6. Four cylinder, 40 H.P. Red Wing engine. A. E. Paradine, 38 Munro Pk. Ave., Toronto.

For Sale—Yawl—36 x 10 keel. Four cylinder engine. Full head room cabin. Four berths. Lavatory, stove, ice box, dory. Practically new. A. E. Paradine, 38 Munro Pk. Ave., Toronto.

CANADIANS—Second-hand engine bargains. Send for list.

**GUARANTEE MOTOR COMPANY**  
73 Bay Street, North Hamilton, Ont., Canada

Canada's exclusive wholesale and retail marine engine jobbers. Dominion's Largest Distributors. Free illustrated catalog, showing over fifty manufacturers' products. Canadian Boat and Engine Exchange, Ltd., Toronto, Canada.

**KERMATH MOTORS—WE WILL TAKE ANY MOTOR IN TRADE ON A NEW KERMATH. GET OUR SECOND HAND LIST. KERMATH MFG. COMPANY. (Detroit, Mich.)**

Wanted—25 ft. to 30 ft. speed boat to run 35 to 40 M.P.H. Not particular about finish. Address: A. G. Schultz, Beardstown, Illinois.

Wanted—Cruiser 45 to 60 feet long. Must be first class boat. Speed 12 miles or over. Send me particulars. L. Cook, 1918 Sunnyside Ave., Chicago, Ill.

For Sale—40 ft. 5 in. x 6 ft. 9 in. mahogany runabout "Chinook", speed 25 M.P.H. Equipped with six cylinder 5½ x 6 Van Blerck engine, electric starter, generator, electric lights, windshield, upholstered seats, top and curtains. Boat is in excellent condition and immediate shipment can be made to any point desired. Value \$7,500.00; will sell for \$5,000.00. Address Winton Engine Works, Cleveland, Ohio.

**Auto Motor Supplies—Buick—Michigan—Stoddard Dayton—Cadillac—Overland—E.M.F. Continental and Buda Motors, all types \$50 each and up. Special high tension 2 and 4 cylinder Magneto \$9.50 each. Electric and Gas Head Lamps—Coils—Carburetors—Air Compressors—Generators—Starters, etc. Write for late catalogue. Address Motor Sales Dep't. B, West End, Pittsburgh, Pa.**

One cyl. two cycle	Two cyl. two cycle	Four cycle engines
5 H.P. American, new.....\$65.	20 H.P. Gray, 5¼x5.....\$135.	6 H.P. New, Imperial, one cyl. ....\$155.
6 H.P. Gray, new.....105.	18 H.P. Kahlenbert, 7x7.385.	8 H.P. Dun, 2 cyl..... 85.
7½ H.P. Fairbanks, 5½x6		12 H.P. Globe with gear, 2 cyl..... 195.
6¼..... 95.	Three cyl. two cycle	14 H.P. Wolverine with gear, 2 cyl..... 315.
10 H.P. Gray, 5¼x5.....135.	15 H.P. Ferro.....\$145.	16 H.P. New, Dunn, 4 cyl. ....135.
	18 H.P. Fairbanks..... 175.	20 H.P. Buffalo, 4 cyl. and gear..... 285.
	18 H.P. Uncle Sam..... 145.	25 H.P. Doman, 4 cyl. and gear.....315.
	26-36 H.P. Barber ..... 215.	
Two cyl. two cycle	Four cyl. two cycle	
5 H.P. Palmer.....\$60.	20 H.P. Roberts.....\$145.	
7½ H.P. Roberts ..... 65.	24 H.P. Gile..... 165.	
10 H.P. Atlantic..... 70.	24 H.P. Fairbanks..... 225.	
12 H.P. Fairbanks..... 85.		
15 H.P. Fairbanks.....105.		

and many others. We buy and trade Motors.

**BADGER MOTOR COMPANY, MILWAUKEE, WIS.**

Advertising Index will be found on page 110

For Sale—35 x 6 ft. 6 in. Hacker runabout "SNAPSHOT," GR-6 Sterling engine, guaranteed speed 35 m.p.h. Solid mahogany and salt water fittings throughout and completely equipped. In perfect order and completely refinished. Only used four months. Only reason for selling want faster boat. John W. Stroh, 253 East Elizabeth Street, Detroit, Michigan.

Marine Engines For Sale—18 H.P. Murray & Tregurtha, 4 cylinder 4 cycle, \$300. 22 H.P. Speedway, 4 cylinder 4 cycle, \$400. 24 H.P. Standard, 3 cylinder 4 cycle, \$500. 32 H.P. Wolverine, 3 cylinder, 4 cycle, \$800. 32-37 H.P. Standard, 4 cylinder, 4 cycle \$800. 40 H.P. Rockaway, 4 cylinder 4 cycle, \$400. 65-75 H.P. Standard, 4 cylinder 4 cycle, \$1,500. 75 H.P. Craig, 4 cylinder 4 cycle, \$1,500. 75 H.P. Automatic, 6 cylinder 4 cycle, \$1,400. 125 H.P. Standard, 6 cylinder 4 cycle, \$1,500. Simpson & Keil, 151st Street, North River, New York City.

For Sale—A two cylinder four cycle heavy duty Clay motor, suitable for fishing or working boat. Complete equipment, Schebler carburetor, Paragon clutch, high tension magneto and suitable Columbian Bronze propeller. This engine in Maybelle V won the New York-Albany Race in 1919. In first class condition. H. C. Vaughan, 551 West 149th St., New York, N. Y.

#### SURPLUS STOCK FOR SALE

At less than pre-war prices

60 K-2 4-cyl. Atwater-Kent Distributors.....each \$12.00  
4 Berling Magneto Impulse Starters..... 10.00  
2 Oldham Couplings for Dixie Magnetoes..... 1.00  
100 Hydrometers for Batteries..... .50  
75 Flush Type Western Electrical Instrument Co. Ammeters—Plus 30—  
Minus 30..... .150

All this equipment is new, some of it in original packages. F. O. B. Monroe, Mich. Send money order or certified check with order. Van Blerck Motor Co., Monroe, Michigan.

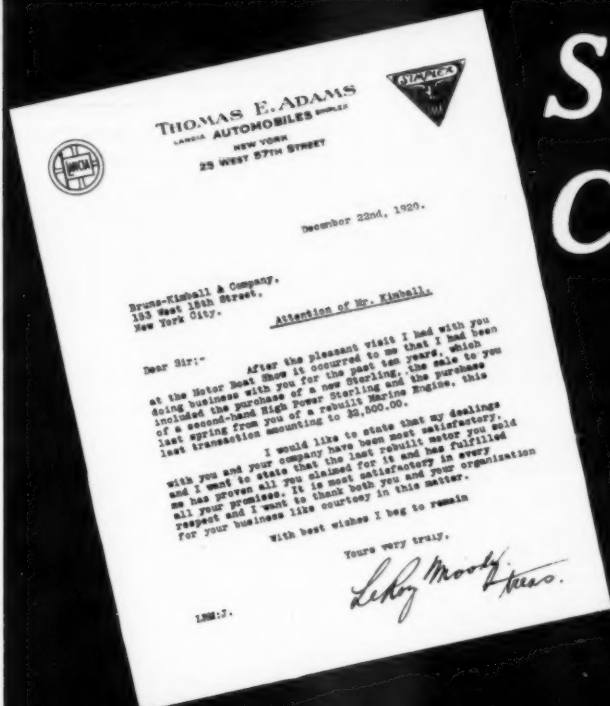
Wanted—25 ft. to 30 ft. cabin boat, V-bottom, 4 cylinder preferred. Give full particulars, price reasonable for cash. Address Box 53, care of MoToR BoatingG.

Right and left-hand, 215 H.P. 8 cylinder, high speed, Van Blerck motors, two years old. Rebuilt and guaranteed, \$1,200 each. In stock. Bowler, Holmes & Hecker Co., Inc., 259 Greenwich St., N. Y. City.

For Sale — A 40 ft. raised deck cruiser complete to the minutest detail with every possible convenience. Double stateroom and saloon sleeping five or six. Price \$3,000. Cannot be duplicated for double. For complete description address Yachting, c/o MoToR BoatingG.

Wanted—A bridge deck cruiser, 30 to 40 feet long, not over five years old. Send photograph with particulars. Address Elmer Dunning, 5232 Florence Ave., West Philadelphia, Pa.

Wanted—For charter for month July, 1921, high-class runabout or cruiser, about 40 ft. long. Send specifications, photograph, price, and all particulars, to E. J. Morse, Room 1912, 61 Broadway, New York City.



# Satisfied Customers

## Our Most Valued Asset

We can satisfy you just as we did the writer of the above letter.

Let us figure with you on the next engine for your boat.

We have on display in our showroom at 153-155-157-159 West 15th Street, New York City, over two hundred (200) rebuilt machines of all sizes, types and makes, and can power any size hull from the miniature "dink" to the palatial yacht or heavy work boat at a saving of from 30 to 50% to the purchaser, in an honestly rebuilt and GUARANTEED motor.

*Our bargain list will be sent free on request*

**BRUNS, KIMBALL & CO.**

153-155-157-159 West Fifteenth Street

New York City

Telephone: Watkins 0467

We also carry a stock of the following makes of new engines:

Sterling  
Gray-Prior  
Hartford

Kermath  
Peerless  
Arrow

Murray & Tregurtha  
Wolverine  
Doman

Missouri  
Roberts



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YACHT BROKER AND  
NAVAL ARCHITECT

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Build your own boat from my plans, or full size paper patterns.

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HAND-V-BOTTOM DESIGNS

Send stamps for latest catalog.

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NAVAL ARCHITECTS  
SURVEYORS — YACHT BROKERS

## CHARLES D. MOWER

Designer of  
SENSIBLE CRUISERS  
POWER—SAIL—AUXILIARY

Twenty-five years' practical experience  
347 Madison Avenue New York City

## Yard and Shop

(Continued from page 40)

### Detroit's New Numbers

On account of a change in the numbering system of the buildings on the various streets in the city of Detroit, Mich., practically all street numbers are different to-day from what they were not long ago. The new addresses of the following firms should be noted:

Disappearing Propeller Boat Company changes to No. 4851 Woodward Avenue.

Kermath Manufacturing Co. changes to No. 5880 Commonwealth Avenue.

Belle Isle Boat & Engine Co. changes to No. 9662 Jefferson Avenue East (Motor Boat Lane).

## Knox Motors in Production

Latest reports on the manufacture of the new 20 h.p. Knox motor indicate that production is well under way and that deliveries are expected to begin sometime in March. The distribution for New York and surrounding territory as well as for many foreign countries, such as Australia, China, Japan, New Zealand and parts of South America has been taken over by Bowler, Homes and Hecker and they expect to carry a large number of these motors in their New York warehouses.

## C. P. McClellan Goes to Florida

On account of ill health C. P. McClellan, head of the well known firm of canvas cover and spray hood manufacturers of Fall River, Mass., has gone to Florida to spend the winter with the rest of the motor boating fraternity. His son, C. P. McClellan, Jr., is now in active charge of the work at the plant.

## Large Hardware Stock

It is claimed that the firm of Briggs & Beckman, New Bedford, Mass., are carrying the largest and most complete stock of marine hardware in New England. A complete catalogue describing all items is in course of preparation and will be mailed to all inquirers when ready.

## New Designs

Among the latest designs turned out by John Alden, the Boston Naval Architect, and which are building under his supervision is a 56-foot motor yacht for which the keel has just been laid and a new class of forty one-design marconi rigged sailing tenders.

(Continued on page 108)



Every Boat should be Fully Equipped

with

EVER-WARM SAFETY SUITS

YOU CAN'T CHILL—

YOU CAN'T DROWN

Approved and used by U. S. Navy.

Ask for Pamphlet "25"—it tells the whole story.

National Life Preserver Company

11 Broadway, New York, Tel. Bowling Green 6669

## FREDERIC S. NOCK

NAVAL ARCHITECT

Yacht Builder, Marine Railways,  
Storage and Repairs

East Greenwich, Rhode Island, U. S. A.

Advertising Index will be found on page 110

What do you want—What have you?

C. S. SPONAGLE

Yacht Brokerage and Insurance

Commercial Boats

Competent Crews Furnished

88 Broad Street Boston, Mass.

## STRONG & BEEKMAN

Yacht and Ship Brokers  
29 Broadway New York

Yachts—all types, Sale or Charter; Commercial Vessels, Steamers, Sail and Auxiliaries; Plans, Specifications, New Construction.

Tel. Whitehall 537

Cable Address "Strobick-New York"



110-Ft. Yacht "CONSUELO" Seagull Yachts

J. MURRAY WATTS, N. A.

138 South Fourth St. Philadelphia  
Phone: Lombard 2072

HAMILTON MARINE ENGINE EXCH., Inc.  
440-444 52nd Street, Brooklyn, N. Y.

Rebuilt Engines in stock for immediate delivery to Power Your Motor Ship Yacht or Tender. Write or wire us to hold the Engine you select. Our price is right in comparison to rebuilt Engines.

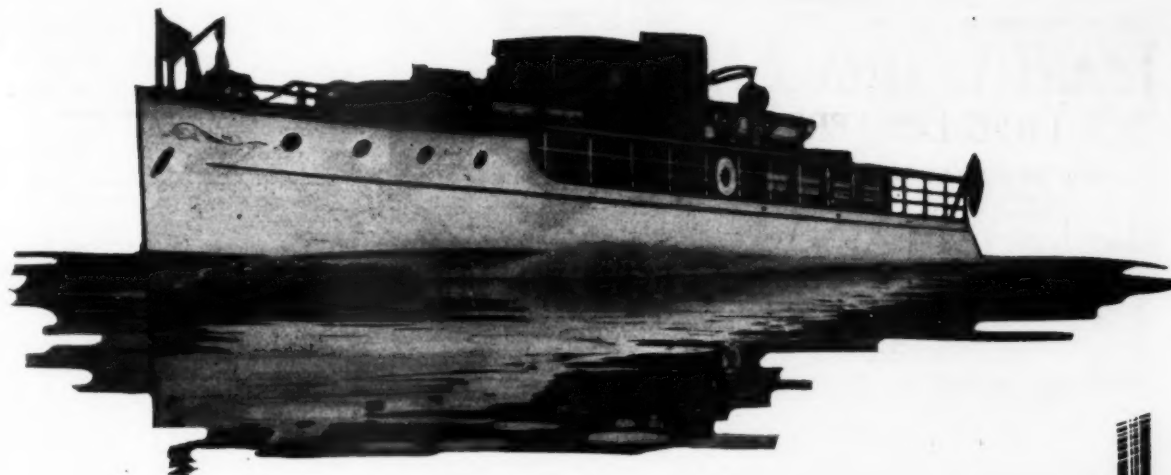
	H.P.	Inches	Cyl.	Price
Standard .....	300	10 x 10 1/2	6	\$4,000.00
Standard .....	100	8 x 10	6	2,800.00
Standard .....	75	8 x 10	4	2,200.00
Standard .....	37	6 x 8	4	1,160.00
Graig .....	300	11 x 15	6	2,600.00
Pair .....				5,000.00
Graig .....	125	11 x 15	4	2,000.00
Graig .....	120	6 1/2 x 7	6	1,600.00
Graig .....	21	5 1/4 x 6	3	360.00
Speedway .....	60-75	6 x 6	6	1,160.00
Globe .....	24	7 x 9	2	400.00
Automatic .....	37 1/2	7 1/2 x 9	3	1,000.00
Automatic .....	18-21	5 1/2 x 7	3	660.00
Eagle .....	24	6 x 7	3	460.00
Fairbanks .....				
Morse .....	20	6 x 6 1/2	2	460.00
Wolverine .....	16	6 1/2 x 7	2	800.00
Rockaway .....	40	6 x 6 1/4	4	500.00
New York .....	40	5 1/2 x 6	4	560.00
Trebert .....	24-30	5 1/2 x 6	4	600.00
Trebert .....	16-20	4 1/2 x 5	4	380.00
20th Century .....	12	5 1/4 x 6	2	300.00
Hall .....	12	5 1/4 x 6	2	300.00
Buffalo .....	24	5 1/2 x 6	4	460.00
Buffalo .....	16	4 1/2 x 5	4	300.00
Jager .....	40	5 1/2 x 5 1/4	6	600.00
Baldwin .....	24	5 1/2 x 6 1/2	3	450.00
Brown Talbot .....	15	4 x 4 1/4	3	250.00

Above Engines have full outfit as Propeller—High tension Ignition—carbureter—oilng system—Reverse gear—complete from Flywheel to coupling. All above Engines are of the 4 cycle type. 2 cycle reversible type Standard made Engines. Complete from Flywheel to coupling.

24	H.P. Lathrop, 2 cyl.	\$375.00
20	H.P. Lathrop, 2 cyl.	360.00
16	H.P. Lathrop, 2 cyl.	275.00
14	H.P. Lathrop, 2 cyl.	260.00
8	H.P. Lathrop, 1 cyl.	125.00
	2 cycle reversible type.	
6	H.P. Lathrop .....	100.00
	2 cylinder 2 cycle.	
15	H.P. Knox .....	240.00
11	H.P. Bridgeport .....	175.00
9	H.P. Bridgeport .....	168.00
8	H.P. Auto Marine .....	100.00
8	H.P. Ferro .....	110.00
8	H.P. Barker .....	136.00
15	H.P. Victor .....	225.00
11	H.P. Gray .....	190.00
10	H.P. Brown, New .....	245.00
12	H.P. Universal .....	200.00
	3 cylinder 2 cycle	
21	H.P. Fairbanks .....	260.00
17 1/2	H.P. Ferro .....	190.00
17 1/2	H.P. Ferro .....	150.00
18	H.P. Fairbanks .....	210.00

One cylinder

7 1/2	H.P. Mianus .....	110.00
3	H.P. Mianus .....	76.00
3	H.P. Mianus .....	56.00
5	H.P. Fairbanks .....	60.00
6 1/2	Bridgeport .....	100.00
4	H.P. Palmer .....	60.00
1	H.P. Ball .....	35.00
9	H.P. Bridgeport Hoist .....	200.00
20	H.P. Mianus, 2 cyl. .....	260.00
15	H.P. Mianus, 2 cyl. .....	260.00
12	H.P. Mianus, 2 cyl. .....	240.00
10	H.P. Mianus, 2 cyl. .....	200.00
8	H.P. Mianus, 2 cyl., Old style .....	140.00



# Real Efficiency

"MYRNO II"  
62' x 11'  
Express Cruiser  
Speed 28 M.P.H.  
Powered with  
Two 6 cylinder  
200 H.P.  
Hall-Scott  
Marine Engines

CONSIDER well, the example of "Myrno II," the big, handsome 62-foot Express cruiser recently re-powered with a pair of six cylinder 200 H.P. Hall-Scott marine engines.

Replacing twin eight-cylinder marine engines of much greater bore per cylinder, also much greater weight—the Hall-Scotts added four miles an hour to Myrno's speed.

The six-cylinder Hall-Scotts are also much smoother in operation, more economical, and, there is infinitely more space in the engine room, features that any owner can appreciate.

Myrno II is owned by Mr. Norman De Vaux, President of the Chevrolet Motor Co. of Oakland, Calif., who now owns no less than four Hall-Scott marine engines.

Hall-Scotts are the choice of men prominent in the automotive industry, men who are in a position to appreciate mechanical achievement of the highest known standards.

Write us for booklet, "Hall-Scott Powered Boats." We will gladly mail you a copy.

## TWO SIZES ONLY:

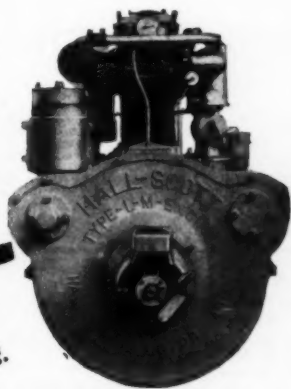
4 cylinder, 125 H.P.,  
weight 1100 lbs.

6 cylinder, 200 H.P.  
weight 1300 lbs.

# HALL SCOTT

MOTOR CAR  
37-39 Associated Service Bldg.  
Buffalo, N. Y.

COMPANY, Inc.  
Factory  
Berkeley, Calif.



When writing to advertisers please mention MoToR BoATiNG, the National Magazine of Motor Boating, 119 West 40th Street, New York


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### MARBLEHEAD SEMI-ENAMEL YACHT WHITE

**FOR TOPSIDES AND INSIDE FINISH**

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Paint **DEVÖE** Paint

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NEW YORK CHICAGO

NO MOTOR BOAT  
COMPLETE WITHOUT

## STEWART CUSTOMBILT NECESSITIES

SEE OUR AD IN NEXT MONTH'S ISSUE

The Great Two-Cylinder

# KOBAN

## ROWBOAT MOTOR

The only vibrationless rowboat motor. Write for new catalogue.

KOBAN MFG. CO.  
240 South Water St., Milwaukee, Wis.



Hunting Boats, Canoes, Rowboats, Fishboats and Motor Boats. Catalog Free. Save Money. Order by Mail. Please state what you are interested in.

THOMPSON BROS. BOAT MFG. CO.  
421 Ellis Avenue Peshtigo, Wis.

## TIME SAVER

## Bearing Abrasive

For perfect bearing surfaces

296 Andrews St., Rochester, N. Y.

## HONEST CLAY

## Heavy Duty Engines

Powerful slow speed four cycle engines for heavy cruisers and work boats. The product of 22 years' experience.

One, two and four cylinders—8 to 50 H.P.

Write for Catalog

THE CLAY ENGINE MFG. CO.  
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## 4-Cycle Engines of Quality

Six sizes—light, medium, and medium heavy duty. 3 h.p. to 20 h.p.—1 to 2 cylinders. Gasoline or kerosene. Suitable for workboats, fish skiffs, sampans, pleasure boats, etc. Working parts on lightweight models, interchangeable with Ford engine parts.

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Pat. Jan. 26, 1917. Approved by the Underwriters. An ideal fixture for motorboats, yachts, boat houses, garages, machine shops, etc. Enables you to use light anywhere up to 25 ft. from fixture. Automatic lock holds at any distance. Automatically rewinds cord when finished. Write for prices.

THE CINCINNATI SPECIALTY MFG. CO., Inc.  
1020 Powers Street Cincinnati, Ohio

## Marine Hardware and Supplies

In planning the spring overhaul, our catalogue will help you select the right equipment. Prompt Delivery—Right Prices.

## W. & J. TIEBOUT

Established 1853—Incorporated 1892

118 Chambers Street New York City

## The Way We Would Do It

(Continued from page 31)

disadvantage of very short life. The current drain on each individual cell when only four are used is very high and the exhaustion of the cell occurs very rapidly. By combining a number of cells so as to give a greater ampere capacity, the drain for a unit is cut down tremendously and the recuperation of each cell enables it to return to normal very quickly. The most efficient way of connecting dry cells would be to connect a number of series groups in parallel or multiple as it is sometimes called. One dozen cells connected four in series and three series in multiple will give a combined life vastly in excess of the life of the same number of cells used in single series only. Our diagrams show a single series, a series multiple group which can be increased as desired by the addition of further series, and a compound series multiple group which will give the same results although connected in a slightly different manner. The use of a dozen cells connected as indicated will increase the service obtained and it will probably not be necessary to use more than one set in the entire season.

While cruising on a yacht last summer I noticed that the ends of all lines were secured against unravelling by being turned back and spliced so as to make a very neat end on the line. Can you show me through your valuable department how this can be done, as I would like to protect my lines in about the same way?—M. B. S., Vermilion, Ohio.

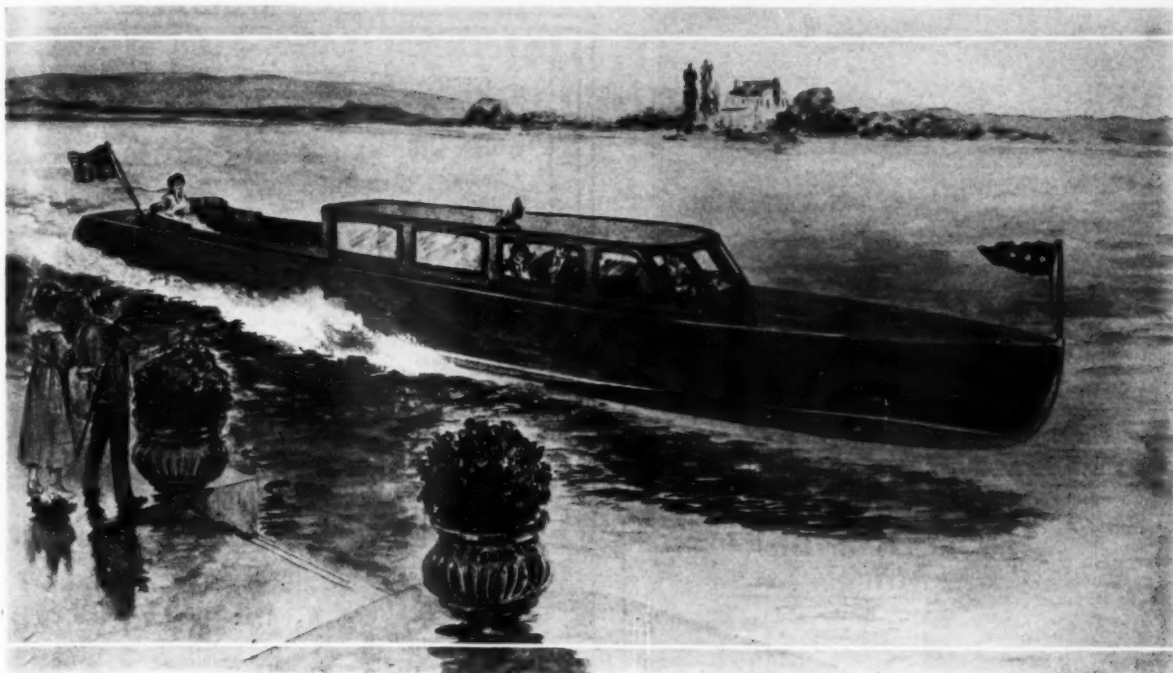
The real genuine seagoing way of protecting the end of a line is by needle-whipping. This is a method used on big ships and is done by wrapping the end for about one diameter with marlin and securing the same by three lays of marlin back and forth over the whipping. The method you refer to is probably the back splice. This is made by splicing the end of the rope back on itself without requiring the use of a needle or marlin. It is more in the nature of an emergency job to keep the rope from unlaying. It is started with a crown knot which will be as shown in figure 3 of our sketch. The three ends are manipulated as shown with this result. These ends are then tucked back under the lay of the rope several times and towards the end of the splice the strands may be halved in order to reduce the thickness of the splice. The ends are cut off close to the body of the rope when the splice is finished.

The reader in Whitehall, New York, who asks about converting a Tuttle motor from mixing valves to carburetor will be answered if he will send us his name.

## Club Notes

The Yachting Department of the New York Athletic Club held its annual meeting at which the following officers for the year were elected: Commodore, H. M. Williams; vice-commodore, Thomas Farmer, Jr.; rear commodore, L. F. Laroche; treasurer, George G. Bell; secretary, E. H. Tucker. The usual Block Island race will be run on July 9th and just about a month later, on August 5th, the A. P. B. A. Cruiser Championship of America will be run, probably from Huckleberry Island to Shelter Island. Interest in this latter race is increasing and the Philadelphia contingent will again be on hand with the old boats and some new ones which are being built in an effort to take the trophy to the Sleepy City. William Penn's sons will have to be wide awake, however, to get ahead of the New York bunch.





## Quietness—the outstanding feature of this Albany Sedan

This hull, an entirely new principle in boat construction, gives greater enjoyment and greater comfort for the reason that it practically eliminates all engine noise and vibration. The exhaust is silenced. Close the boat tightly against wind and weather and still you ride in peace and quiet.

But there are yet other advantages.

Equally as important as its silence is the increased speed. An official trial of Tarpon, the first boat constructed on this new principle, scored a world record. It develops faster speed per unit of horsepower.

And the boat is more seaworthy.

In this new principle of boat construction, the stern does not drag down. More freeboard is possible forward. The boat does not bury itself head on nor is it so easily swamped in a following sea. So much more seaworthy is this hull, in fact, that we equip these boats to meet weather conditions that would be positively dangerous for the ordinary V bottom type.

This new principle in boat construction meets the requirements of the A.P.B.A. rules. It is applicable to all sizes of fast pleasure boats—runabouts, Express cruisers—and even to hydroplanes. It adds seaworthiness, comfort and greater speed. We invite correspondence.

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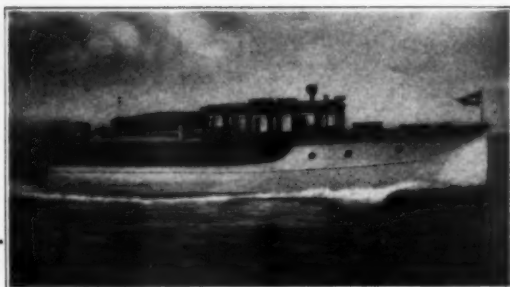
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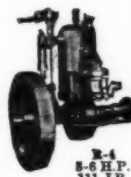
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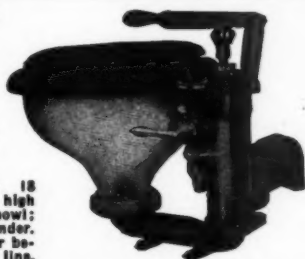
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Figure  
1404

Dimensions: 18  
x 18 x 11" high  
to top of bowl;  
2 1/2" cylinder.  
For above or be-  
low water line.

The best little closet on the market today, possess-  
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All brass and porcelain. Oak seat and cover.  
All prices subject to market advances, which are  
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#### The J. H. Curtiss Co. Pioneer Specialists in Marine Sanitary Fixtures

Since our advertisement ap-  
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hundreds of Curtiss fixtures  
have been installed in motor  
cruisers and yachts of all sizes,  
including some of the finest  
boats launched within this  
period.

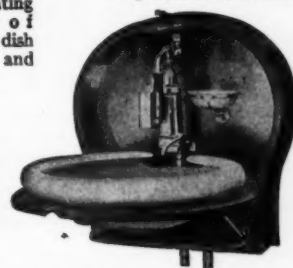
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size and price to meet every pos-  
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has been designed in accordance  
with our wide experience in  
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upon in quality, service and  
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is our highest or lowest priced  
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"PRICES ON APPLICATION"

#### With Pump

Cock on pump  
swings upward,  
thus preventing  
breaking of  
bowl. Soap-dish  
is porcelain and  
removable.

No. 5  
Height, 10 in.  
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Case, or Ma-  
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Lining and Fixtures  
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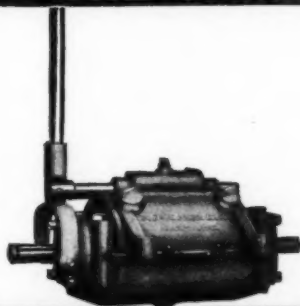
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NEW STANDARDIZED  
**32 FOOT CRUISERS**  
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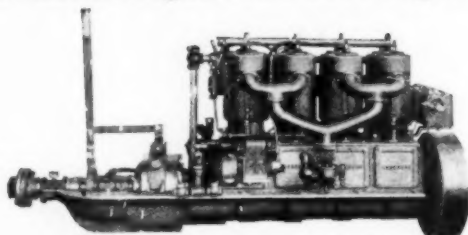
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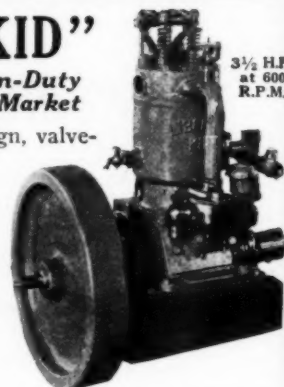
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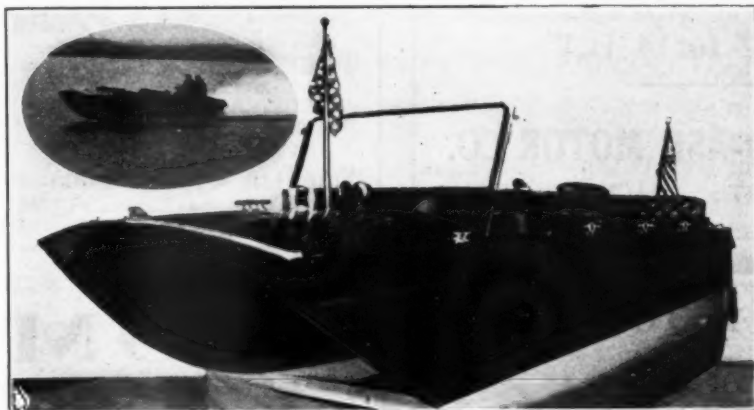
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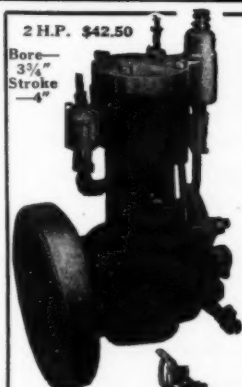
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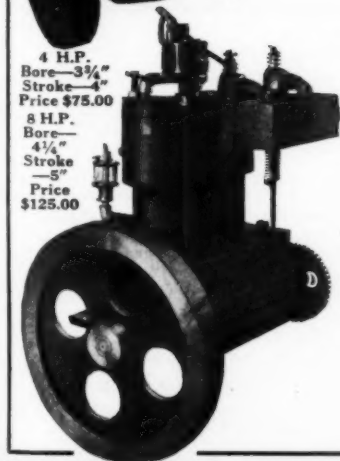
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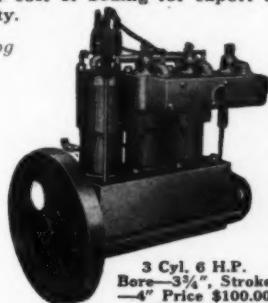
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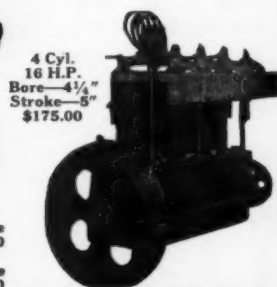
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Bore—3 3/4", Stroke—4"  
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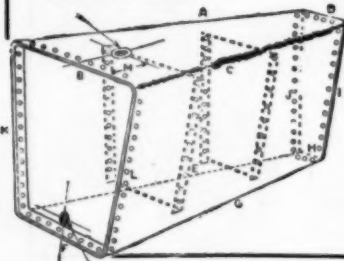
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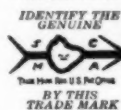
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If you own or are planning the kind of a runabout or cruiser that deserves a really excellent power plant, you should know more about the Capitol, its special features of construction and how it is built.

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Stroke  $5\frac{1}{2}$ "

High Speed Model 60-65 H. P. at 2000 R. P. M.

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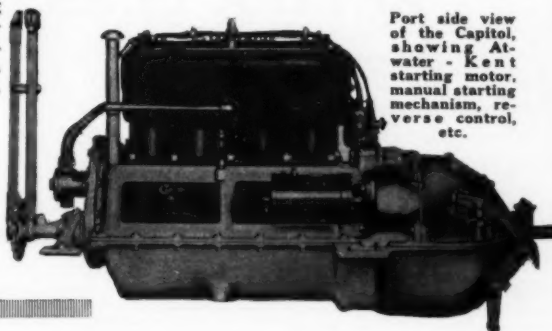
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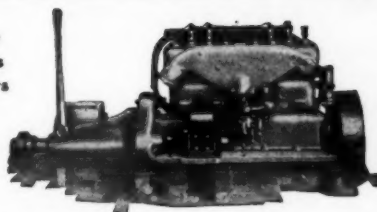
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Port side view of the Capitol, showing Atwater-Kent starting motor, manual starting mechanism, reverse control, etc.

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Our Model No. 29 is especially designed for light, easy rowing. An ideal boat for ladies' use. Now is the time to place your order for delivery when wanted next season.

**SKANEATELES BOAT AND CANOE CO.**  
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Builders of the Finest Row Boats in the World.

## STRATFORD OAKUM

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George Stratford Oakum Co., Jersey City, N. J.

## The Gordon Silencer and Under-Water Exhaust

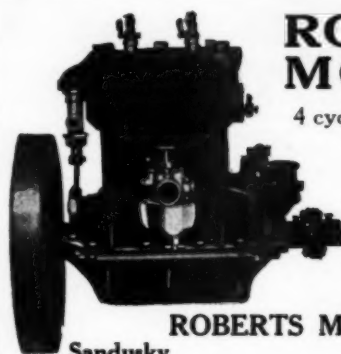
No Noise	No Smoke
No Pounding	No Grease
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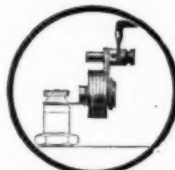
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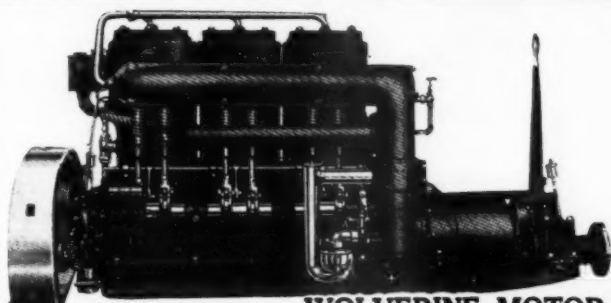
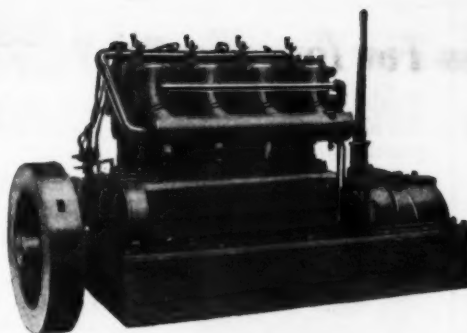
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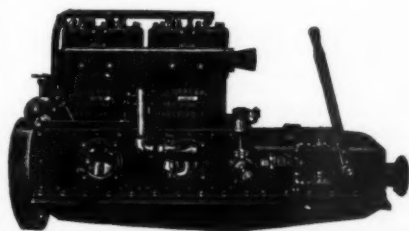
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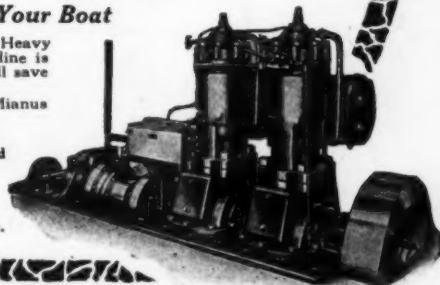
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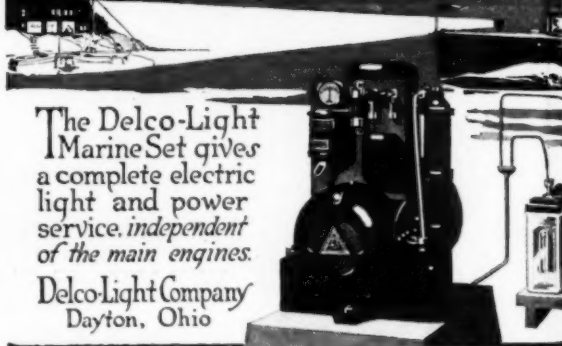
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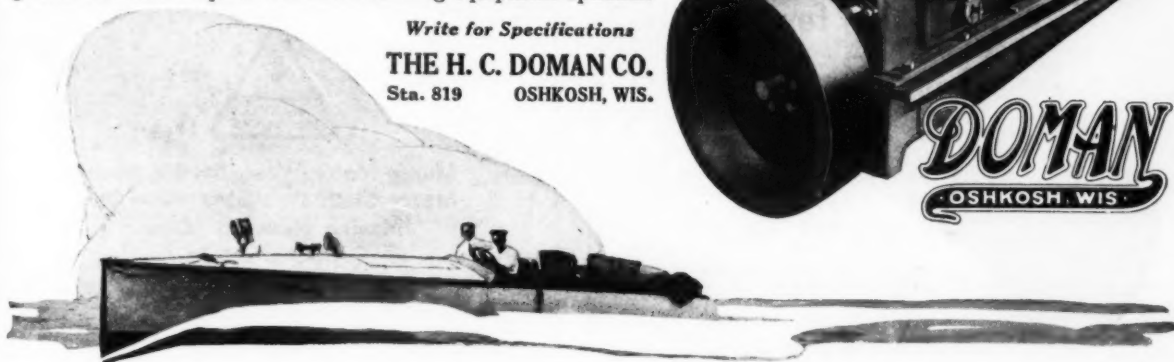
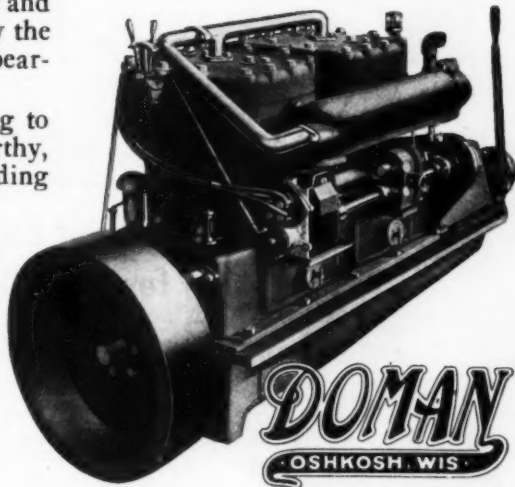
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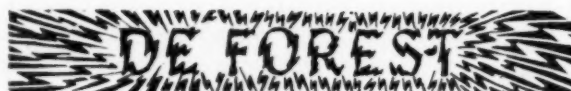
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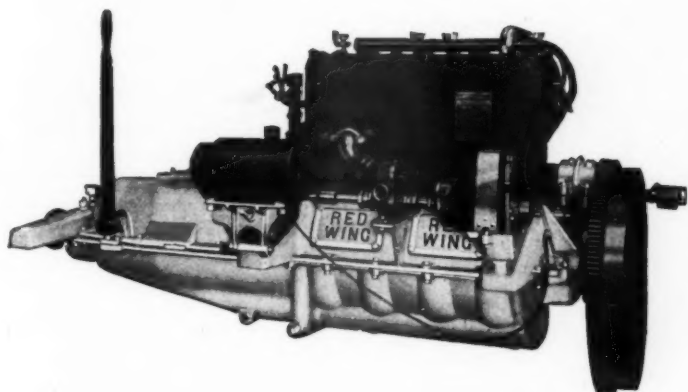
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THE MOTOR WITH POWER TO SPARE

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A drummer sat in the hotel office. Three hairs remained on his near bald head. Next day two of them had disappeared and as he stroked the third, it too came out. "Well," he said, "I'm bald at last."

You may think you'll "plug along" another season with that old motor but if there are only three

good coughs left in her, why not admit you're bald without waiting for the last gasp. Every year you put off buying a real motor you're a year nearer the time when it will be too late to enjoy it.

Get our prices and details on our five sizes, 10 to 40 H. P. They burn either kerosene or gasoline.

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Defects in castings as well as scores are repaired perfectly by this process.

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## BRONZE GEARED PUMPS



The successful operation of your engine depends very largely on the efficiency of the cooling system, the oiling system and the fuel feed.

Equip your engines with the ever-reliable Oberdorfer Pumps and you can forget all about your cooling, oiling and fuel feed systems. Their action is entirely automatic—the speed of the motor determines the supply. A feature of utmost importance is the fact that the Oberdorfer will never over-feed nor under-feed. Oberdorfer Bronze Geared Pumps are standard equipment on Kermath, Scripps, Gray, Lathrop and other good marine motors.

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## DEFOE Knock-Down Boats



A 50-Ft. Frame Ready to Take Apart and Ship

SEND for illustrated price list of our sixty standard hull designs from 18 to 70 ft., and tell us what you want. If you require a LARGER BOAT, in steel, composite or entire wood construction, send YOUR SPECIFICATIONS. Our knock-down system will save you money, and may enable you to get a boat that would otherwise be impossible for you.

Your distance from boat building centers is no bar to your obtaining a knock-down boat of ANY SIZE AND TYPE.

**DEFOE BOAT & MOTOR WORKS**  
3220 State Street      Bay City, Mich., U. S. A.



A 65-Ft. Defoe Cruiser Complete

## Rules of the Road Made Easy

(Continued from page 14)

of fishing vessels, boats aground, tied to piers or floats should be avoided. A vessel is responsible for injury caused by her wash or suction.

Generally speaking, the speed of a boat should not be greater than would enable her to change from headway to sternway when danger presented itself. The requirements of reasonable speed applies with even greater force to sailing vessels.

The method of giving the various signals, whistles and other kinds, by the various types of boats under different conditions of navigation are fully described in the rules. Promptness in giving signals is of the first importance. The navigator of any boat, big or small, whether it be the smallest motor boat or the largest ocean liner, who fails to promptly give and answer signals, is subject to a penalty and should be immediately reported to the Bureau of Navigation, Department of Commerce, Washington, D. C.

### A VESSEL'S RIGHTS NOT ALTERED BY WHISTLE SIGNALS

An unanswered signal creates a situation of doubt and demands great caution. The vessel must not conclude that any signal has been assented to by any omission on the part of the other vessel to answer. Signals should be repeated as often as is necessary to secure an answer. On the other hand, failure to respond to signals by a privileged vessel is not an abandonment of her right of way. Neither is the answering of a signal, whether it is as prescribed by the rules or not, by a privileged vessel an abandonment of her privileges. Signals which are required under the rules do not take away any rights from the privileged vessel, neither do they confer any benefits upon the burdened ship. The vessel which first signals gains no advantage or disadvantage. Should the burdened vessel first whistle it does not relieve her of any burden even if she should attempt to secure a privilege from the privileged vessel.

The method of passing whether to starboard or to port as provided by the rules cannot be violated except by mutual consent by appropriate whistle signals given and answered, and notwithstanding any such agreement, the vessel which changes the method of passing prescribed by the rules, assumes all risk.

### INDICATE YOUR COURSE

See Fig. 18

In addition to the sounding of the proper whistle signal, it is essential that the helmsman of each boat should indicate what his course is to be by the swinging of the bow of his boat sharply to port or starboard, as the case may be, for a moment, as in many instances the whistle signals of a small boat cannot be heard at a great distance. When the helmsman of an approaching boat sees its bow swing to one side or the other, he immediately recognizes what the action of this boat is to be, even if he has failed to hear or to understand the whistle signals.

### ALLOW AMPLE PASSING ROOM

When passing, always give the approaching boat as wide a berth as possible. Nothing was ever gained by passing close to and much has been lost. The amount of passing room should take into consideration mistakes, misunderstandings, ignorance of the rules, fear, suction from passing vessel and even breaking or failure of steering gear. When passing a sailing vessel, special attention should be given to the particular circumstances of navigation to which a sailing vessel is subjected at the time.

### DO NOT USE CROSS SIGNALS

Motor vessels are forbidden to use what is known as cross signals; that is, answering one whistle with two or answering two whistles with one. In cases where a whistle is correct, according to the rules which it is deemed injudicious to comply with, instead of answering it with a cross signal, one should at once sound the danger signal of four or more short and rapid blasts. In such a case, both boats should be stopped or reversed, and a boat should not proceed again until the proper whistles have been given, answered and understood and conditions have developed so that the boats can safely pass.

### WHEN NOT TO GIVE PASSING SIGNALS

See Fig. 24

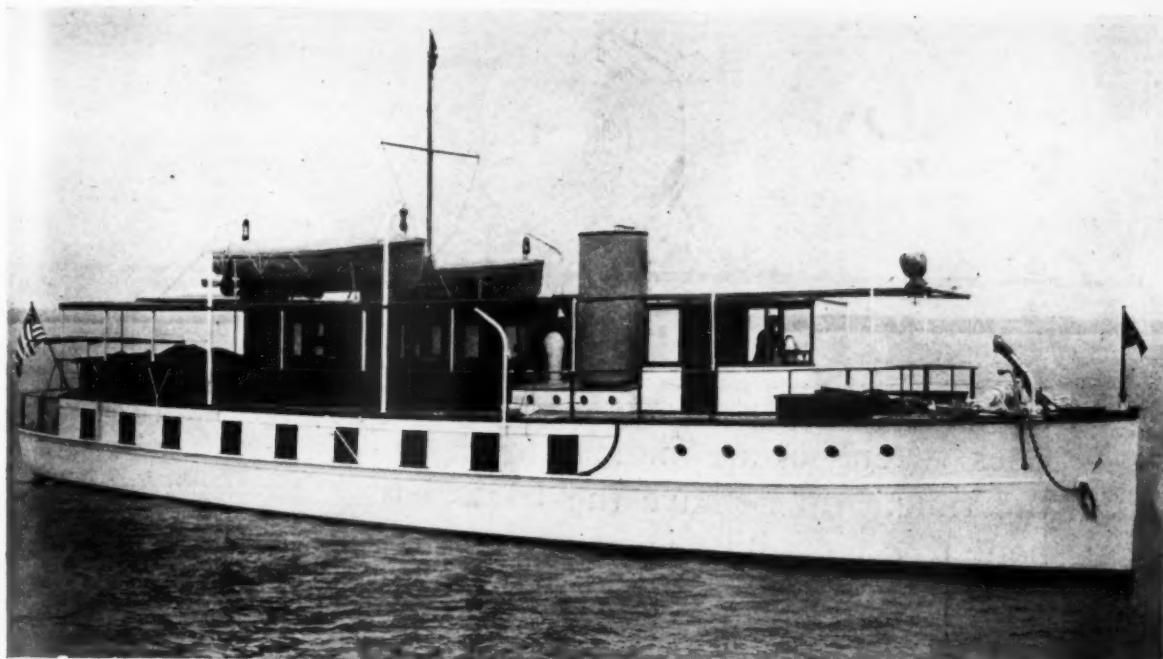
Passing signals provided by the rules are never to be given except when the vessels are in sight of each other and the course of each can be determined by the sight of the vessel itself or at night by seeing the sailing lights. In fog, mist, falling snow or heavy rainstorms, when vessels cannot actually see through, fog signals only must be given. Whistle signals are not to be given unless danger of collision exists. If there is doubt or uncertainty as to whether a danger of collision does exist, then it should be assumed to exist. Whistle signals between a motor boat and sailing vessel or between two sailing vessels should never be given.

### IN CASES OF DOUBT

See Fig. 19

Whenever two motor vessels are approaching each other and

(Continued on page 72)



85-ft. Houseboat Luneta, Mathis-built for Col. S. L. H. Slocum, Washington, D. C.

## The Most Recent Development in Mathis-Built Houseboats

This new model 85-ft. houseboat represents the utmost in houseboat construction up to the minute.

It is the ideal combination of sea-worthiness, comfort, roominess, and ability-to-go-anywhere along tortuous inland streams of Florida.

It possesses advantages over the 120-ft. cruisers on every score from cruising comfort to maintenance and up-keep.

Owner's quarters contain four commodious double state rooms, a unique lobby, luxurious bath rooms, a delightful after-deck, and a large home-like deck house forward.

### The Feature of This Florida Season

is this new Mathis-built 85-ft. model, represented in Florida now by the **LUNETTA**, illustrated above, and the **NAHMEOKA**, built by us for H. N. Baruch, New York.



The large, luxurious deck house on the new 85-ft. Mathis-built Houseboat Luneta

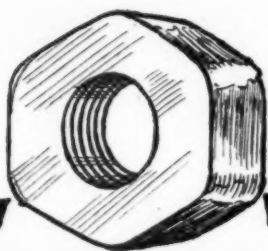
Among the other notable new arrivals in Florida this past month, are the two newest Mathis-built 61-ft. Houseboats — **Cyrene**, owned by Mr. R. M. Bond, Daytona, Florida, and the **Arlene**, owned by W. S. Selby, Sarasota, Florida.

## MATHIS YACHT BUILDING COMPANY

*Specialists in Houseboats and Cruisers  
from 40 to 120 Feet.*

**COOPER'S POINT, CAMDEN, N. J.**





## Ever Have This Happen to You?

Coes Wrenches are made to fit all the time. They have the backbone to do it. The jaws will not spread and wipe off the corners.

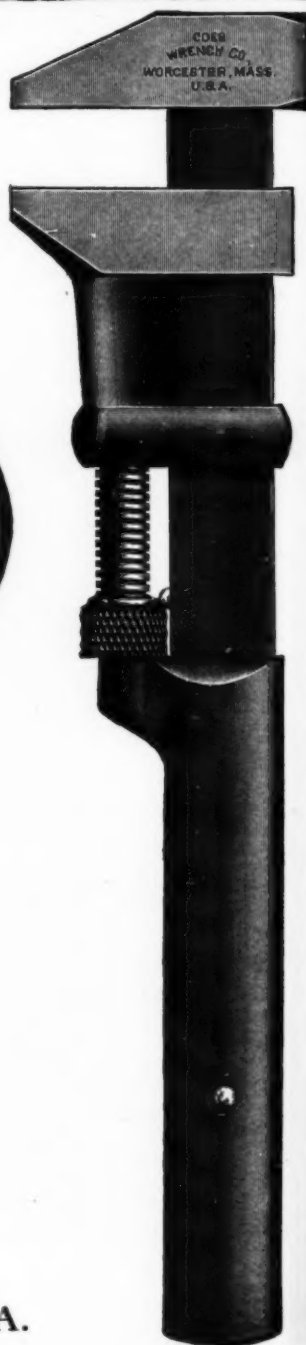


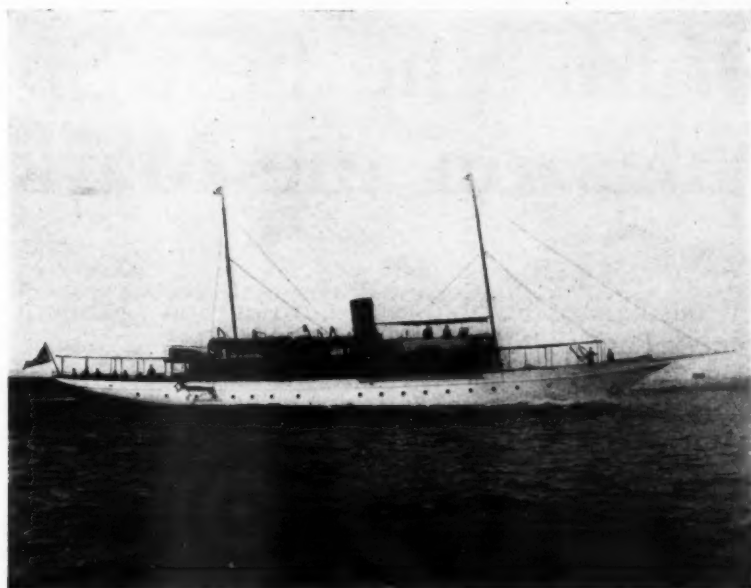
The steel handle model is made in seven sizes, from 6" to 21". Five solid parts make up the wrench. It is the logical engine room and machine shop tool. Why not ask your jobber? Or your dealer? Or us.

**COES WRENCH COMPANY**

Worcester

Mass., U.S.A.

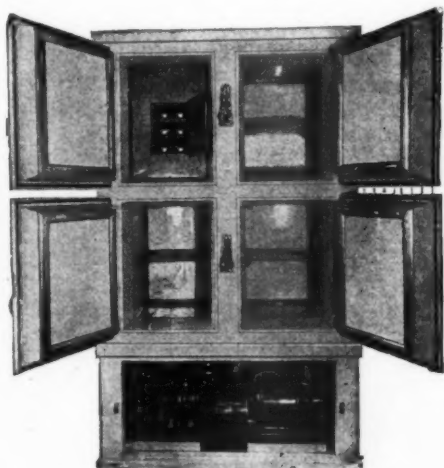




S.S. FLORENCE, owned by Julian F. Detmer, designed by Henry J. Gielow. Built by Geo. Lawley & Sons Corp. Equipped in 1914 with Clothel Refrigeration which is still giving good service.

## *Have You Considered Clothel Refrigeration for Your Home?*

The same certain refrigeration that Clothel has been giving motor boats, yachts and larger vessels may now be had in a



The smaller of two standard sizes of Clothel Electrical Refrigerators for home use.

standard, compact unit for the home.

The Clothel Refrigerating Unit cools without ice, providing dry, crisp coldness that preserves food indefinitely.

Operating automatically by electricity, it requires little or no attention, maintaining a low even temperature at all seasons.

Durably built, carefully insulated and handsomely finished inside and out. Write for booklet.

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Refrigerating Co.***

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Consider the two letters on the opposite page—both written by the same company, but sixteen years apart. Rajah Spark Plugs have been the Consolidated choice against all competition for sixteen years because they are "the best spark plugs on the market."

## Use Rajah Plugs in *Your* Engine

Because they cost the engine manufacturer a few cents more per plug Rajah Spark Plugs are used as factory equipment on only the highest grade marine engines, such as Speedway, Murray & Tregurtha, etc. But every manufacturer and dealer will supply Rajah Plugs if you insist on it when you order your engine.

You might as well enjoy the superior service of Rajah Spark Plugs. They cost you no more than ordinary plugs—in fact they cost less in the long run.

Buy a *full set* of Rajah Plugs now for your engine. Then throw away your old plugs, for you will remain a Rajah user for life.



**Rajah Plug. Waterproof, shockproof, breakproof.**  
\$1.50, all threads

**Waterproof Rajah Plug. \$1.50**  
**Giant Rajah Plug. . . . . 1.25**  
**Standard Rajah Plug. . . 1.00**



**Regular**  
Fits any  
size cable



**Thrust**  
The Thrust and Hook Rajah  
Terminals are furnished with  
ferrules to fit any size cable



**Hook**



**Thumb Nut**  
With all Rajah  
plugs unless  
otherwise or-  
dered. Also  
ball and stud  
types



**The Standard  
Rajah Plug**  
\$1.00  
all threads

**Manufactured by Rajah Auto-Supply Co., Bloomfield, N. J., U. S. A.**



# RAJAH

## SPARK PLUGS

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Charles L. Seabury, Vice President

William J. Seabury, Secretary &amp; Treasurer

Gas Engine &amp; Power Co. and Charles L. Seabury &amp; Co.

Consolidated

200 West 40th Street, New York City

Steam and Sail Yachts

Speedway Gasoline Motors and Launches

The only reliable launch, boat and motor vessels, Marine Engines and Boilers

Morris Heights, New York City Sept. 6th, 1905.

Rajah Auto Supply Company,

3140 Washington Street,

N. Y. City.

Gentlemen:

Since our preliminary order for the Rajah Spark Plugs, we have continued to use them exclusive of all others and will do so probably so long as they give such eminently satisfactory service. Therefore, we have no hesitancy in recommending their adoption by all Gasoline engine users.

Very respectfully yours,

Gas Engine & Power Co.  
and  
Charles L. Seabury & Co.


HEAD OFFICE: NEW YORK

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WILLIAM J. SEABURY  
CHARLES L. SEABURY  
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Consolidated  
SHIPBUILDING CORPORATION  
MORRIS HEIGHTS, NEW YORK CITY

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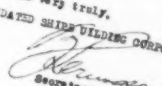
January 11, 1921.

Rajah Auto-Supply Co.,  
Bloomfield, N. J.

Gentlemen:

We have been using Rajah Spark Plugs on our "Speedway" gasoline motors for the past sixteen years, because in our opinion they are the best spark plugs on the market.

Yours very truly,

CONSOLIDATED SHIPBUILDING CORPORATION.  
  
 Secretary & General Manager.

20/11

Rajah Spark Plugs are made in all sizes and types especially suited for different types of engines. Tell us the name of your engine and we will gladly recommend the proper type of spark plug.

If your dealer does not sell Rajah Plugs, send us his name, let us know the size you want, and we will see that you are supplied, postpaid.

**Rajah Spark Plugs are sold by leading dealers everywhere**

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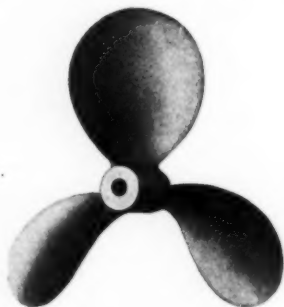
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Our catalog, "Propeller Efficiency,"  
will be mailed upon request.

**HYDE WINDLASS COMPANY**  
BATH, MAINE, U. S. A.

## Rules of the Road Made Easy

(Continued from page 66)

either fails to understand the signals, course or indications of the other for any reason, the vessel in doubt should immediately give the danger signal of four or more short blasts of the whistle.

### MEETING HEAD-ON

See Fig. 14

When two motor vessels are approaching each other head-on or nearly so, it is the duty of each to port his helm, which will swing the bow of his boat to starboard and thus pass port side to port side. It is the duty of each to give one short blast of a whistle.

### COURSES PARALLEL

When two boats are on parallel courses heading in opposite directions but each course so far to the starboard of the other that no change of course is necessary in order to allow the boats to clear, two blasts of the whistle should then be given by one boat, which should then be acknowledged by two blasts from the other boat. Each boat will hold its course and speed and should pass clear of each other, starboard side to starboard side. This is the only meeting or crossing situation where it is allowable to use a two-whistle signal in passing.

### MEETING OBLIQUELY OR CROSSING

See Figs. 9, 11 and 17

If the courses of two motor vessels are such that the two are approaching each other at right angles or obliquely, so as to involve risk of collision (other than overtaking), the motor vessel which has the other on her own port side shall be the privileged vessel, and shall hold her course and speed. The motor vessel which has the other on her own starboard side is the burdened vessel and shall keep out of the way of the other vessel, using whatever means are necessary to do so. The privileged vessel should sound one blast of her whistle. This should be answered immediately by one blast from the other boat.

Assuming that no whistle signals have been previously given, if for any reason the boat not having the right of way desires to, she may ask permission to pass ahead of the right-of-way boat by giving two blasts on the whistle. If the right-of-way boat is so inclined, she may grant this permission by answering with two short blasts of her whistle. However, in granting this permission by giving two blasts of the whistle, it is understood by the other (burdened vessel) that she may pass ahead at her own risk. Such a reply does not of itself change or modify the statutory obligation of the giving-way boat to keep out of the way as before, nor does it guarantee the success of the means she has adopted to do so. In other words, should an accident occur, the responsibility will rest entirely with the boat which has not the right of way, even though the fault seems to lie entirely with the other craft. This is a situation which is very common on the waterways of our country. But motor craft should always be careful to avoid it as it is entirely illegal.

Should the boat not having the right of way request permission to pass ahead of the other boat by giving two blasts of her whistle, and should the right-of-way boat not desire to grant this request or permission, she will sound the danger signal, in which case both vessels must stop, and be absolutely sure of the action of each other before proceeding.

### CROSSING AHEAD

Every vessel which is directed by the rules to keep out of the way of the other vessel shall, if the circumstances of the case admit, avoid crossing ahead of the other.

### WHEN IN DOUBT AS TO WHETHER ONE OR TWO BLASTS SHOULD BE GIVEN

See Fig. 1

As to the action called for by one or two blasts of the whistle, there is a very simple rule which if kept in mind will assist all skippers to remember whether he is to pass port or starboard, ahead or astern of the craft giving him the signal. The rule will also hold good when the man at the wheel of your boat wishes to indicate to the other craft what action you are to take, as well as the course you wish to follow, providing you are the right-of-way boat and have the right to dictate to him.

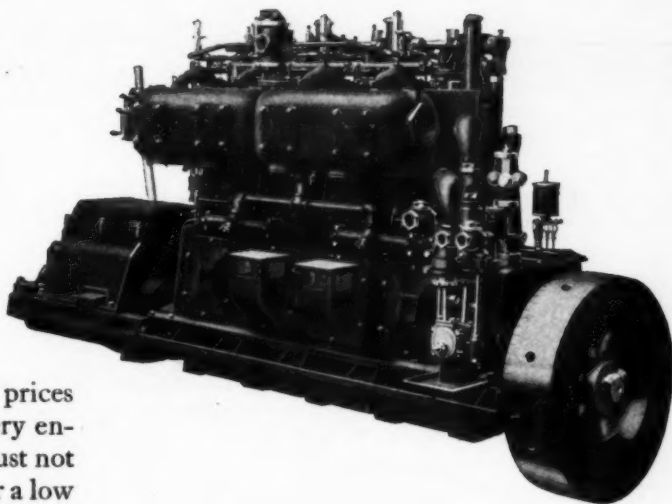
Keeping in mind the two sides of the boat—that is, port and starboard—we have the former word, port, of one syllable, and the other side of the boat indicated by a word of two syllables—namely, starboard. If one simply remembers that the word of one syllable is always associated with one blast of the whistle and the word of two syllables with two blasts of the whistle, he will have no difficulty in giving and obeying the passing whistle signals. If the oncoming boat gives you one blast of her whistle it is your duty to answer with one blast of the whistle, provided all is well. The signal of one blast is an indication that the boats must pass port side to port side. If two whistles are given and answered, associate this signal with the word of two syllables, and the boats will then pass starboard side to starboard side. This simple rule holds good in all instances of boats meeting and crossing.

(Continued on page 104)

# DODGE

## Heavy Oil Engines

are operating  
daily on  
both coasts



Fuel economy with the present high prices is the most important factor for every engine owner. Economy, however, must not alone include the use of cheap fuel or a low lubricating cost but must include rugged parts, thick cylinder walls, powerful connecting rods and crank shafts to provide against break-downs, loss of time and repair bills. Dodge low speed engines with their carefully finished parts provide for the above extremely important construction.

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*Tug "Hioma" with 37½ H. P. Dodge  
Heavy Oil Engine Installed*

*Let us send you records of test runs of boats using Dodge Heavy Oil Engines*

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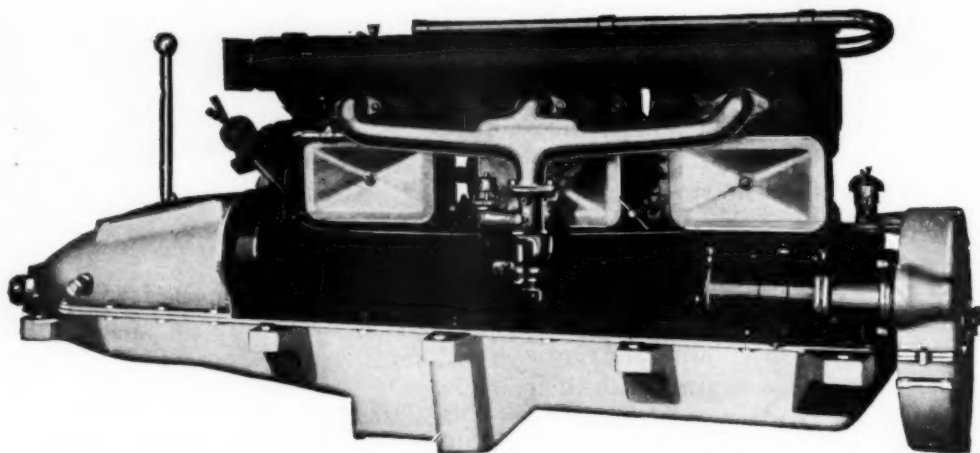
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## "The Motor that crossed the Atlantic"



## The Sixteenth Year

**T**HE New Year marks the sixteenth annual season for the Scripps Motor and the Scripps Organization—pioneers both—that have always been a credit to motor boating and the industry—building with an honesty of purpose and a vision that have made motor boating history.

In all these years Scripps engines have never failed to live up to their reputation of being unusually fine engines—a more reliable or adaptable motor has never been built—because in all these years the Scripps organization has followed steadfastly but one ideal—and that to build better than the motor boating public thinks necessary.

In the earlier years reliability was always a Scripps keynote recognized at home and abroad.

With the ruggedness and absolute dependability that have marked the Scripps engine in the past, has been linked a progressive and wide awake engineering resourcefulness that has always been ahead of the time in meeting the exacting refinements of the present.

The Scripps is a citizen of the world—in every sea and every clime it is delivering that high order of service that has made the Scripps synonymous with perfect motor performance. Fully 60 to 70% of the Scripps total output goes overseas, not in a succession of isolated sales, but Scripps shipments in yearly increasing volume go to regularly established dealers in Siberia, China, Japan, Siam, French Indo China, Straits Settlements, Dutch East Indies, India, New Zealand, Australia, Central and South America, South Africa, Portuguese East Africa, Egypt and all of Europe.

This wide distribution of Scripps engines is the result of building into every Scripps motor, whether used at home or abroad, a quality that we term "built-in service". This makes for uninterrupted motor performance and enjoyment in any class of service in any type of hull.

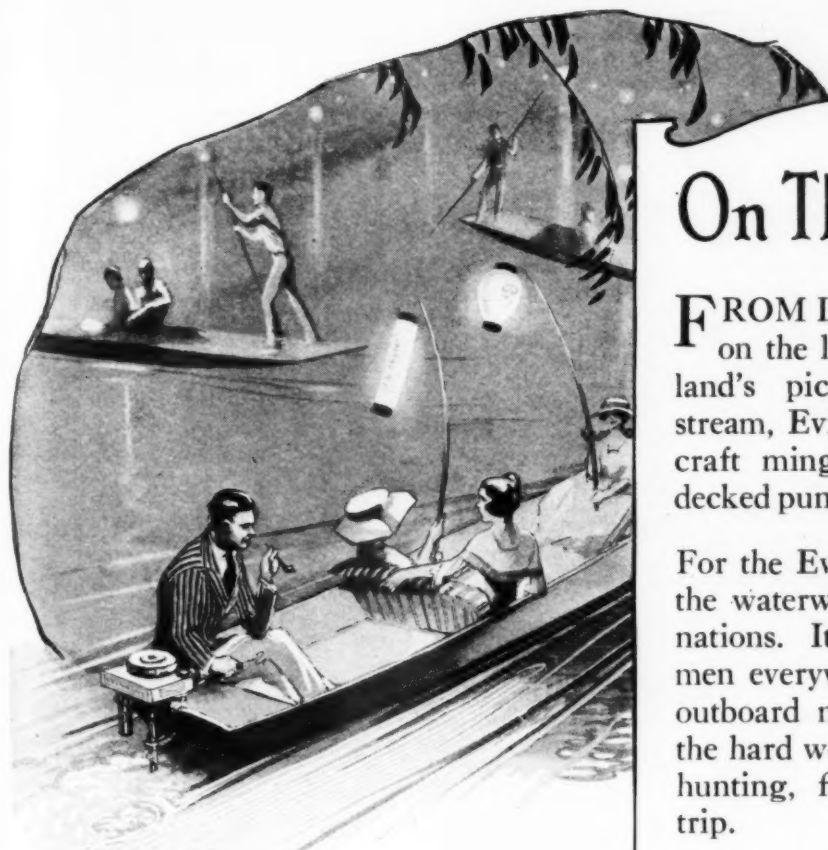
Power your boat with an engine in which you can have the reliance and confidence that carried "Day" across the Atlantic. It costs no more (power and equipment considered) than an ordinary engine and a whole lot less in the long run.

You have choice of 2, 4 or 6 cylinder 10 to 125 H.P., gasoline, distillate or kerosene. We also manufacture heavy duty engines for commercial work operating pumps, generators, machine shops, etc.

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Built-in-flywheel Magneto and Automatic Reverse are distinctive refinements.

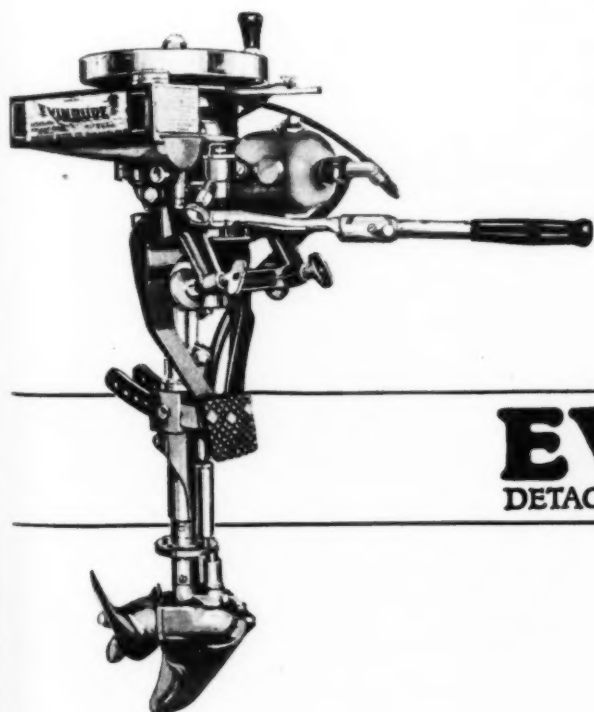
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DETACHABLE MOTOR FOR WATERCRAFT

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## How to Build Nomad, a 34-Foot Cruiser

(Continued from page 26)

Be sure that at the start the molds and frames true to line. Have the lumber dressed. The sides of the keel square must be true if the boat is to be first surface you work from must be true if the square with true and fair. Make certain that the upper side is square with the sides of the keel so that molds, stem, horn lumber, etc., will rest square on keel; have under side of keel square with sides so that keel will stand perfectly perpendicular.

to the strain of bending frames in against the ribbands. The strapping is fastened to the keel, stem, horn timber, and lay aside the molds till we need them. For the keel we need a good sound stick. Lay on this stock a template made from the lines on the floor, mark out the shape and stations, then trim to the outlines, run a pencil line down the center of the top and with a square mark the stations across the upper side. These will give the necessary marks for setting up the

will have a line to guide you in beveling off the stem from the rabbit line to the  $\frac{3}{4}$ -inch face. The rabbit line is the outer line of the rabbit where the surface of the planking meets the keel and stem; the bearding line is not given, as this line is the outline where the inner surface of the plank meets the stem; this line must be accurately obtained from the work on the floor if the rabbit is to be cut in the stem before it is erected. But we suggest cutting the rabbit with the stem set up, it being easier for amateur builders to do a good job this way. So simply mark the rabbit line on both sides of stem and get out stem and stem apron.

Now get out the horn timber, which is six inches wide, rabbeted one inch each side for planking. Mark center line on top.



# Is Your Motor Hard to Start

# ?

## Save Your Time, Your Temper, Your Motor, Your Storage Battery

Present day gasoline will not vaporize (evaporate rapidly) at atmospheric temperature, either in summer or in winter. Most marine motors are hard to start, the year around. Is yours?

Do you have to prime each cylinder with gas, or else spin your motor by hand or by electric starter until the intake suction and piston compression vaporize enough gas for the first explosion?

## Hot Gas Petrolizer

The B & L Petrolizer insures a sure, quick start every time, at any season—in any weather. This is not merely a primer. It is an auxiliary carburetor for starting which feeds the cylinders with hot, dry, highly explosive gas.

The electrically heated chamber raises a volume of gasoline to 600° F in a few seconds. This boiling gas is injected into the intake **under pressure**, reaching the cylinders and spark plugs in the most explosive form.

The motor cannot fail to start with the first spark. The Petrolizer furnishes enough gas to keep it running until the regular carburetor begins to function properly.

The B & L Hot Gas Petrolizer saves gasoline, saves oil and saves storage batteries. No gasoline is wasted for priming. The oil in the motor cannot be diluted with raw gas—a frequent and dangerous occurrence. The current consumed is less than the amount used by the electric starter in turning the motor one revolution.

### MONEY BACK GUARANTEE

We will refund your money if the B & L Hot Gas Petrolizer does not sustain our claims for starting your motor instantly. Absolutely guaranteed for one year. Easily installed.

Write today for booklet and prices. Interesting proposition for the trade.

**G. B. Van Buren Company**

Guaranty Trust Building

522 Fifth Avenue

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Manufactured by Bintliff-Laing Co.

The B & L Hot Gas Petrolizer includes — Heating Unit, Fuel Injector, Electric Switch, Signal Light, Gas Line Tee, seven feet extra heavy copper tubing, eight feet double-covered wire and terminal.

RESISTANCE COIL WITH ASBESTOS CORD INSULATION

SHEET MICA INSULATION

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SHEET COPPER FORM

WIRE TO TERMINAL

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FUEL COIL

WIRE GROUNDED

VAPOR PLUG

The heating unit that does the work, (height 3 inches)



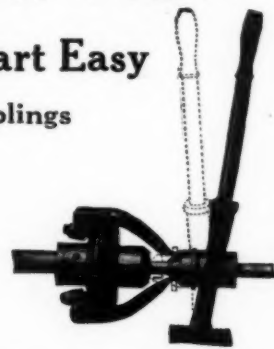
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OF EVERY DESCRIPTION

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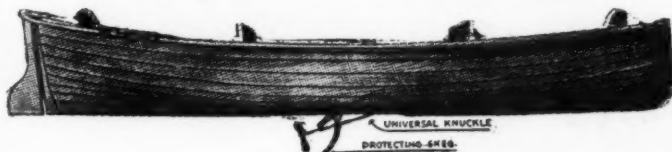
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and Economy

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The Disappearing Propeller Boat is the most practical motor boat ever built. It is the "universal" boat—appropriate for more different kinds of service and meeting the needs of more possible users than any other type of water craft.

You can go anywhere safely in this boat, in shallow or deep water, over obstructions and through weeds. It makes 9 or 9½ miles an hour and goes 20 to 25 miles on a gallon of gasoline. Simple and safe enough for children and fast enough for anyone.

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You'll be surprised at the low cost and economical maintenance of this motor boat.

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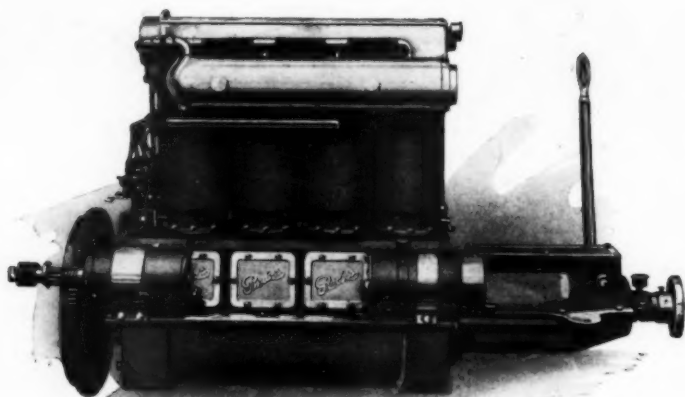
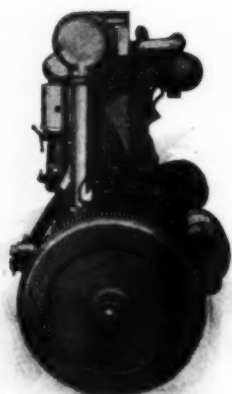
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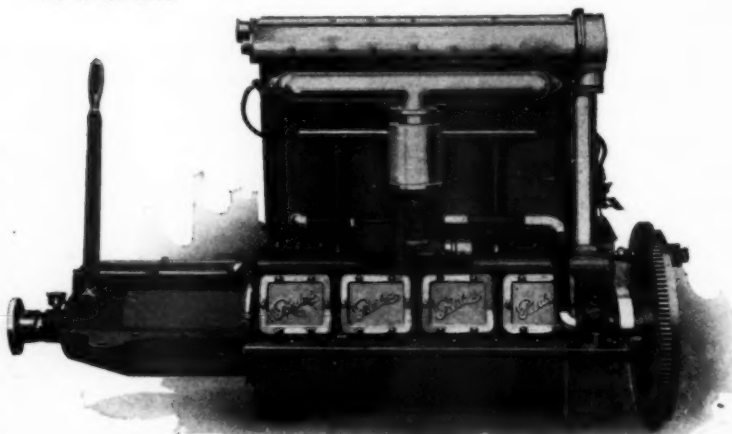


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Bore—5 inch.  
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Speed—1650 R. P. M.  
Crank Shaft—2½ inch diameter, 5 bearings, Nickel Steel and heat treated.  
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The demand for pleasure craft that drive faster per H. P. led us to perfect this "V" bottom type—a boat that gathers speed with all the additional power you can put into her. Just as safe a sea-boat as the Mullins has ever been, but steadier, drier, and more modern in every detail of construction and finish. Draws less water, yields high speeds with low gas consumption.

Behind the design of this new "V" bottom steel boat, stands the experience of America's foremost naval architects. Behind its construction, stands the largest boat-building factory in the world—with 25 years of leadership proved by over 70,000 Mullins boats in use all over the globe.

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HEAVY DUTY TYPE

6 cyl. 65-75 H. P.

## YACHTS AND HOUSE BOATS



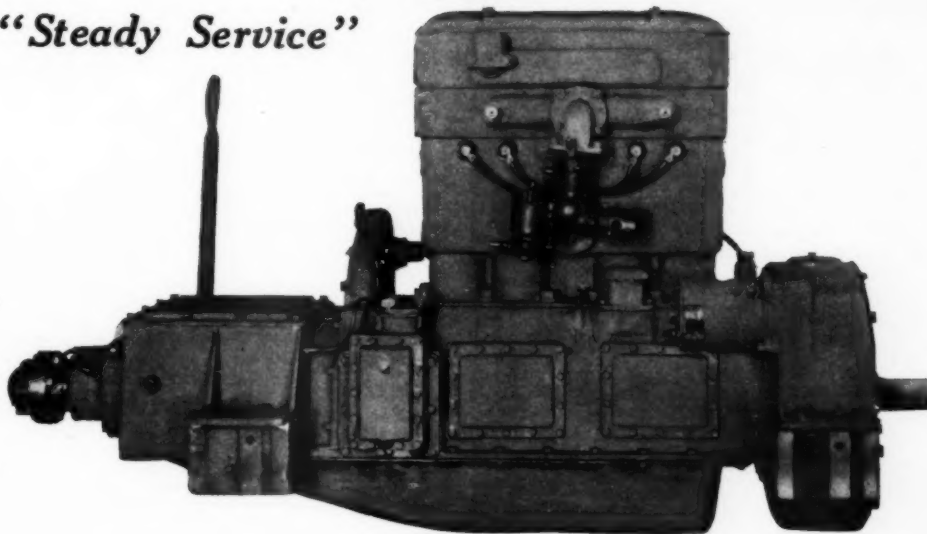
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Those who have inspected the new Knox 20-H.P. Marine Motor have marveled at its completeness. Admittedly a new model and a new design they have been surprised that nothing has been overlooked, nothing forgotten that contributes to the service, convenience and pleasure of the boat owner. Every detail of design and equipment has been thought out to its logical conclusion.

Take the lubricating system, for example. The oil is carried under pressure to the motor bearings, the reverse gear rear and thrust bearings, the rocker arm shaft, circulating and bilge pumps, and even to the very interior of the reverse gear. There are no grease cups on the Knox Motor.

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75 H. P. LIGHT WEIGHT ENGINE  
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## How to Build Nomad, a 34-Foot Cruiser

(Continued from page 76)

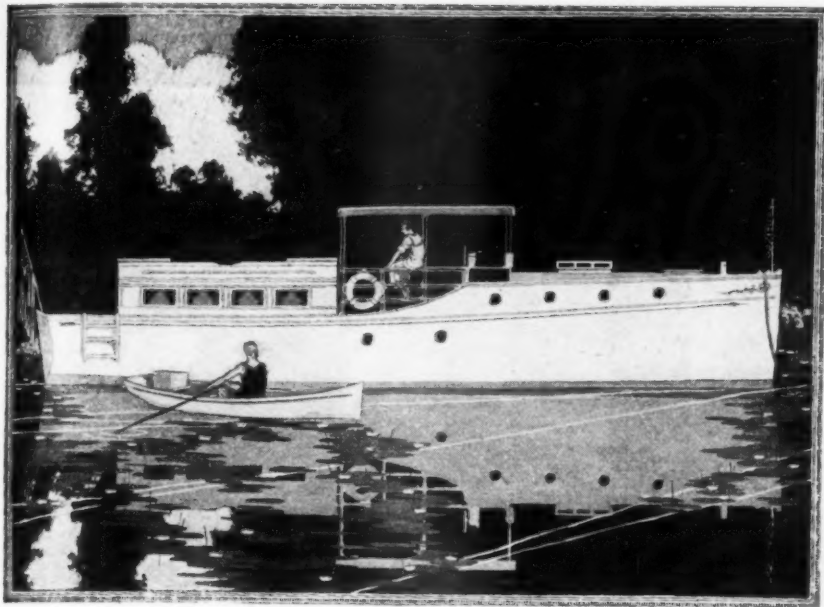
Get out transom knee, but don't bore for rudder port until knee is fastened in place. When all scarphs or joints between stem, stem apron, keel, strut, horn timber, etc., are a perfect fit coat the surfaces with thick white lead and fasten them together as specified. This backbone of your ship should now be set up. Snap a chalk line to work to and measure off intervals of three feet for stations, set up 4x4-inch uprights so that one edge lines up with the chalk line and one corner with the station mark. Nail braces so that the posts are plumb. If the floor is not level have the posts plumb and fasten 3x1-inch straight-edge parallel to and three feet below L.W.L., this is base line. Saw off the uprights to suit angle of keel bottom. The bottom of the little ship should be high enough off the floor to permit working under the boat. Use a spirit level in getting the whole foundation for your boat plumb and level and fasten substantial braces to keep it so. Don't be afraid to use lumber and nails. Fasten a short wooden cleat to the uprights so that they project up about three inches onto the keel to which they are nailed. Stretch your chalk line from center of transom knee to center of stem knee or apron and drop a plumb-bob from various points to make sure that the keel is straight. Nail braces from the backbone to the rafters or other permanent structure overhead.

Now set up the molds at the station marks on the keel, etc., plumb them and square (horn) them with the keel, setting molds forward of No. 6 with forward side of mold on the station line and those aft of No. 6 with the aft face on the station line. Be sure of this. Next bend the ribbands around the molds, one ribband with the lower edge at the sheer line, one ribband with lower edge at raised sheer line, one at the turn of the bilge, and others spaced between these and the keel so that you have seven or eight good husky ribbands of spruce, pine or similar wood about 2½ inches square and tapered slightly at ends. Tapering ribbands will permit easier bending to the form of the boat. Make sure that you have ribbands close enough at turn of bilge to insure that when the frame is bent in and clamped to these ribbands that there will be resistance enough to prevent the frame pulling the bilge in flatter. Fasten the ribbands to the molds with coach screws or lag screws ½ inch by 5 inches, with large flat washer under the head so that you can draw the ribbands up snug to the mold without burying the head in the wood.

For the non-professional it is easier to set up the transom frame on a form of the same radius as the transom. This radius is true throughout the transom, i. e., 6 feet 8½ inches. Make a heavy form having this radius, fit frame pieces of transom over it, fasten them together and steam and bend transom planking over frame on form, clamp and allow to cool, then fasten. Set transom in place, measuring over-all length of the boat by line stretched over center line of boat before fastening transom in shape. As you put on the ribbands you should cut notches in the stem for guiding you in cutting the rabbet line in this manner. Lay a piece ¾ by 3 or 4 inches wide on the forward molds and let end of this piece rest on stem in position over rabbet line. Then chisel out a notch and cut and try until the piece exactly fits the notch, coming flush at the rabbet. Do this carefully. When you have several notches cut bend a light batten around connecting these notches, and then cut away the wood between notches and thus you have your rabbet cut so that the ¾-inch planking will fit it accurately. We are now ready for the framing job.

Take time on this job, allowing the frames in the steam box to steam well and become flexible. Your steam box should be about a foot square inside, about 25 feet long, with plenty of good hot steam led into it. Have cover to fit on one end which can be quickly opened and closed. Have cleats on the bottom so as to raise stock to be steamed off the bottom and allow the steam to get at all sides. Shove the frames in and turn the steam in fast. A few trials will enable you to judge how long to steam the particular stock you have. You may break several frames bending them in, but we would suggest first bending some in just a little forward of amidships, say about frames 10-15, and get experience in handling the work. Before you do this it would be well to spend some time watching a professional boat builder at work. Have frames marked on keel, stem and horn timber, also on the inside of the ribbands, with chalk, so that you and your helper can quickly place them when bending them in. Work fast, taking a frame from the box and setting the frame at the keel first and from the inside forcing the frame down to the ribbands and having the man outside the boat clamp them in place with 6-inch screw clamps. After they have set fifteen or twenty minutes secure them with small wire nails driven through the ribbands into the frames with heads protruding pretty well, thus releasing the clamps for use in holding new frames; otherwise you would need a shop full of clamps. Bend the heads of the frames more than needed because the tendency is for the frame in cooling to straighten out, pulling on the bilge ribbands and forcing the head of the frame out. Also.

(Continued on page 86)



## "A 50-foot Ship"—36 feet long

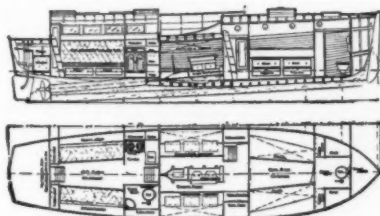
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## How to Build Nomad, a 34-Foot Cruiser

(Continued from page 84)

have the frame a foot or two longer than the finished length of the frame, because it is much easier to bend it. Frames in the bow are not square with the keel, but in order to save material and trouble beveling the frames to the extreme bevel required we have put in cant frames; simply place the frame at the stem and pull the heads forward and twist frame to lie flat on ribbands. When frames are in, carefully place frame at keel and fasten.

Next fit the floor timbers; these are to be sawed to shape and cut out of 1 $\frac{3}{4}$ -inch oak. Lay the stock from which the floor timber is to be cut across the keel in position shown, mark along the edge of the frames on the board, saw them out, bore timbers (which should all line up), place in position and fasten. It is now necessary to remove the molds in order to fit clamps, etc., but be sure the boat does not spread when molds are removed. As you take out a mold you must brace the boat by two or three braces across boat. Also be careful not to disturb the two ribbands at main sheer and raised sheer. The under sides of these ribbands give you the sheer lines and you need these later. Mark the location of the clamps, bilge clamps, etc., on several frames and fit them in place. Now is the best time to put in the deck beams and cockpit floor beams, as this work can be done now better than after the boat is planked and they will tie the boat together. Do not fasten cockpit floor beams. The raised deck beams should be steam bent to the necessary radius over a form. To get out the deck beams a beam mold is necessary, and William Atkin described this in his article in December, 1919, issue of *MOTOR BOATING*: "With a mold set up in two or three locations on raised deck, battens or ribbands can be run over these molds and beams bent in, or beams can be steam bent over form and set in place when cold, being trued up by ribbands on beam molds."

You are now ready to plank. Patience and care are all that are needed; it is not the hardest thing in the world to plank a round-bottom boat. The principle in planking a boat is the same as used in the construction of a barrel, the staves are wide in the middle and narrow at the ends, with the same number of staves in the middle as at ends. Get good planking, free of loose knots, especially at the caulking seam. If these are small knots with sap around them you should bore these out after boat is planked and drive in wood plugs planed off flush. The first plank next the keel is the garboard; fit this first. The pattern for this is obtained by spiling. A  $\frac{3}{4}$ -inch board is tacked to the frames so that its lower edge, near the rabbet, is cut so it roughly fits the curve of the rabbet. Lap and fasten two or three such spile staffs together and secure in place so that spiling for the entire garboard can be taken and spile staff removed entire length of garboard in a unit. With a pair of dividers set to slightly more than span the greatest distance between spiling staff and rabbet prick off a series of spots to give the curve necessary to cut the garboard so it will fit accurately against keel. At the ends where there is considerable curve lay your rule across at intervals of three or four inches and mark a series of lines to give the direction in which the measurements are to be taken off and measured back on. Take plenty of measurements around these curves. Amidships, splings every foot are sufficient. Carefully remove this thin pattern and lay it out flat on the board you have selected for the garboard and set these distances back with the dividers still set to the same distance between points. Draw a line through these spots with the aid of a batten, tacked outside of the spots so that the brads will not puncture the part of the board you will use for plank. Saw out the shape of the lower edge and plane it smooth. The upper edge can be snapped with a chalk-line and cut out. If the boat is the same both sides this pattern will fit both sides; if the garboard does not fit the other side, repeat the spiling process for that side and get the exact curve of the garboard strake.

With screw clamps try these planks on and mark any imperfections in fit and cut and try until they fit all along the rabbet. Then fasten them. For fastening you want two braces and bits or twist drills, one with a bitt to cut for a countersink so as to let the head of the fastening go in about  $\frac{3}{4}$  inch so a wood plug can be fitted and one to bore for nails. Be sure the bitt bores a hole the size of the plugs, not too large or too small. Our specifications call for galvanized fastenings, but if you wish to use copper rivets this can be done.

The garboard strake should be about 6 or 8 inches wide, and the next plank, the broad may be the same. Now fit the sheer strake. With your spile staff find the shape the top edge of this board will make by measuring off at intervals with the dividers. The distance between the sheer strake and the bottom planking must be figured by bending a batten on the frame. Suppose we bend it on frame No. 17 and the distance is 48 inches and 4 inches is to be the width of planks; this means that we will require 12 planks. The width of plank on various frames is found in this way. With the spile staff get shape of top of next plank below

(Continued on page 88)

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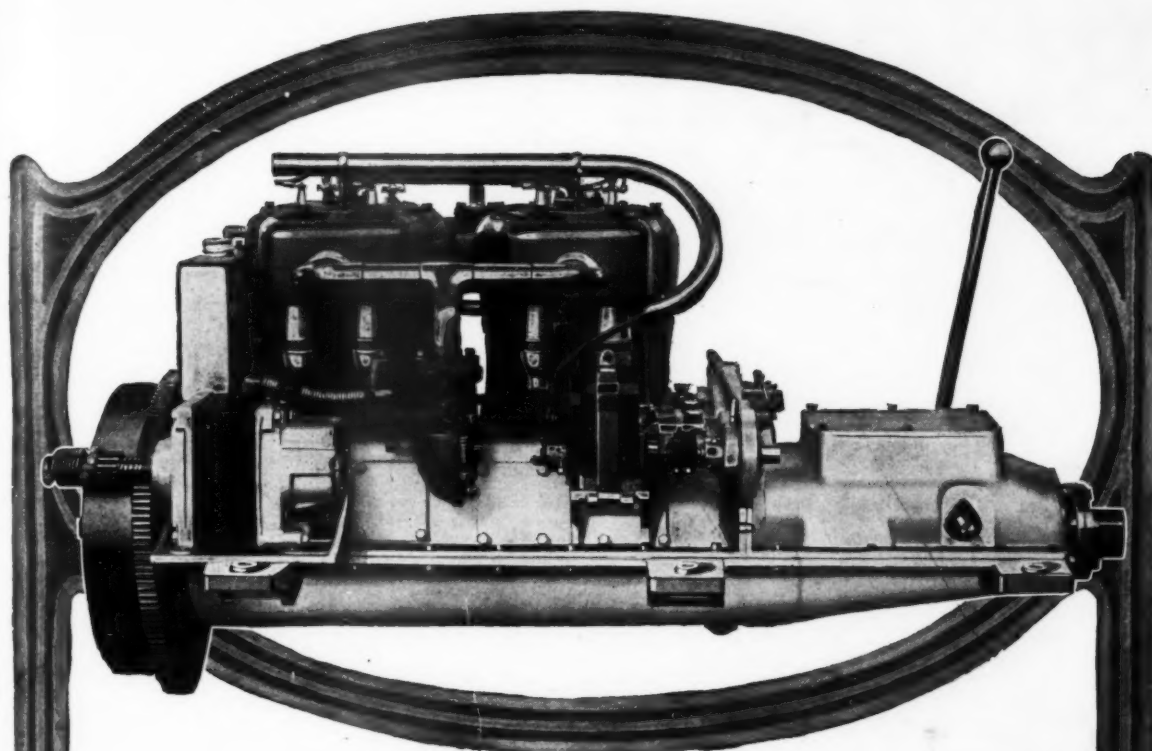
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## How to Build Nomad, a 34-Foot Cruiser

(Continued from page 86)

the sheer strake, get out a plank four inches wide amidships, tapered as found necessary toward each end and sweep a fair curve with a batten for the lower edge of the plank. Work the planking down from the sheer strake and up from the garboard until the last plank to go on is the shutter, which should be a tight fit and be driven in place carefully. Now plane the planking off with a jack plane and then we are ready for caulking. Before you attempt to caulk you should watch a professional caulker at work. The amount of caulking cotton to be driven into the seams will vary every few feet and we must be careful not to drive the planks apart or drive the caulking through. The seam should be absolutely tight on the inside and open about 1/16 inch outside. No plank should be fastened where the seam is open on the inside. Caulking is done with yacht cotton, which is spun wicking, a caulking iron and mallet. In fitting caulking cotton into the seam it should be brought back from the caulking already in and sort of lapped back on the other and lightly driven into the seam. The caulking should be driven about 3/4 inch below the surface seam, painted with thin white lead applied with a seam brush which has a single row of bristles in a wood handle. Allow the paint to set a day or so and then fill seams with putty. Then plane off the planking, sandpaper it to a smooth finish, coat any knots with shellac to keep the sap in the wood from discoloring the paint. Then give the boat a priming coat and a couple of coats of the white, but leave final coats until boat is practically ready. Scratch the waterline. Bore for rudder port and fit steering gear. Engine foundations should be built before cockpit floor is laid. Don't be afraid of putting white oak into the engine bed. To line up the engine foundation with the center of the shaft we erect a plumb post inside the boat forward of the engine bed and another perpendicular post outside the boat. Place a wire level at the top of the posts and drop plumb-line from the wire close to each post so that the point of the bob will just touch the wire stretched perfectly through the center of the shaft hole, this wire being attached to the posts. From the shaft center line wire measure down the thickness of the engine flange to the under side of the flange. This gives you the top of bed. You can then cut each bed log, level them, fit bed logs and floor timbers together and fasten. Now fasten cockpit floor beams in place, lay floor and build hatches. Install exhaust and all connections possible before laying floor. Install motor as soon as the boat is framed if, possible; you get most room to work.

Fit bulkhead at forward end of cockpit, lay cabin floor and erect the interior work. If you leave off the raised deck until the greater part of the joiner work in the cabin is erected there will be more light and room to work. When you lay this raised deck use matched staving and after nailing punch the nail heads in slightly and plane the deck and putty all holes. Give it a heavy coat of gray priming paint and while this paint is wet lay the canvas over it, have all the neighbors help you pull it taut and turn it down and tack it at edges. Fasten the aft end first.

Let the wet paint saturate the canvas and when canvas has been laid give it a coat of salmon deck paint. Do not cut any openings for skylight, hatch, companionway, etc., until canvas is set. Place a layer of cotton or wicking laid in thick white lead under all skylight, hatch, companion slides and coamings, fastened on deck. Fasten skylights and hatch coamings with long screws driven from under side with heads countersunk and wood plugged. The refrigerator should be built in careful manner of two thicknesses of 3/4-inch spruce with 1 1/4-inch space between covered with tar paper and filled with ground cork. The ice space should have a metal ice pan and grating on bottom and drain to bilge. The motor for this boat should be one not over 24 inches high, to fit under floor of cockpit. Many suitable motors of 20 to 30 h.p. at revolutions of 500 to 800 can be found for this boat. A 20 h.p. motor will drive her nine statute miles an hour; a 25 h.p. motor will drive her 10 m.p.h., and a 30 h.p. motor will drive her 11 m.p.h. A bronze shaft log with flexible stuffing box is shown. A three-blade bronze propeller with wide blades of about 22-inch diameter, 22-inch pitch is very suitable for the average motor installation suited to Nomad.

Arrangements have been made whereby those desiring full scale blue prints of the drawings for these boats can secure them at nominal cost by addressing F. W. Horenburger, 63 West 184th Street, New York City, N. Y.

### Specifications of Materials for Nomad

By William J. Deed

**T**HE complete boat shall measure: Length over all, 33 feet 10 inches; breadth over planking, 9 feet 0 inches; draught under skeg, 3 feet 0 inches. Boat is to be built under cover and to be fully insured at all times until completion. All material to be first class commercial quality.

#### Hull

Keel: To be of white oak taken from 4-inch stock to finish 3 3/4 inches at least. To be molded as per plan in one piece. To support rudder at

(Continued on page 92)





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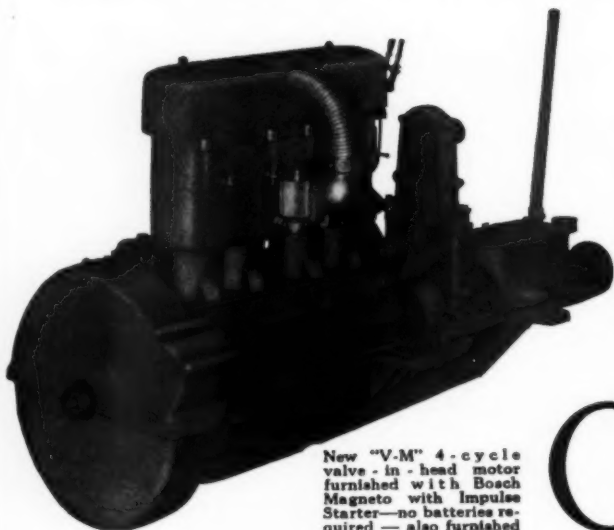
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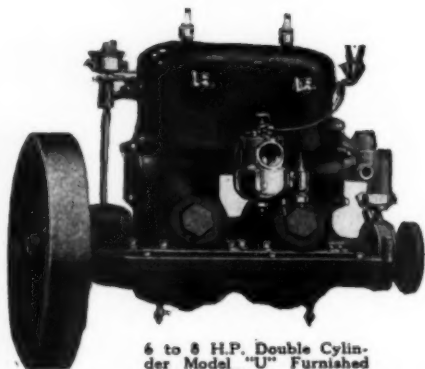
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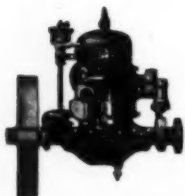
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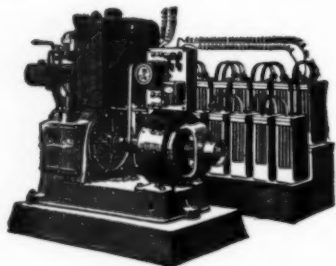


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## How to Build Nomad, a 34-Foot Cruiser

(Continued from page 88)

aft end; upper surface of keel squared to take strut but forward of strut neatly rounded in way of opening. To be beveled for planking.

Stem and Stem Apron: To be of white oak from 4-inch stock to finish at least 3 3/4 inches. Stem tapered to face 3/4 inch and bound with 3/4 inch brass half-round fastened with screws. Apron to be 4-inch white oak secured to keel and stem by 1/2-inch galvanized bolts as indicated.

Horn Timber: To be of white oak sided 6 inches, molded 4 inches secured to keel by 3/4-inch galvanized rivets as indicated. To be rabbeted for planking.

Strut: To be of white oak sided 6 inches in way of shaft and above and below reduced to 3 3/4 inches. To be fitted with lignum vitae bearing for shaft of diameter installed. Strut to be secured by 3/4 inch galvanized bolts top and bottom and by 1/4 inch thick brass plates riveted in place as indicated.

Floor Timbers: To be of white oak sided 1 3/4 inches, molded as per plan. Wherever possible floor timbers to extend to bilge stringer to be fastened to same. Each floor timber to be secured to keel with two galvanized drift bolts and to frames with galvanized boat nails. Limbers to be drilled 1 inch diameter in all floor timbers each side of center at level of top of pitch. Bottom of boat to be filled with tar pitch to level shown; one bay to remain clear for pump well.

Frames: To be of best straight-grained young white oak, sided and molded 1 1/2 inches steam bent, spaced 10 inches on centers. Frames in way of engine space, Nos. 21-28 inclusive, to be sided 2 inches, molded 1 1/2 inches. Frames Nos. 1-4 inclusive, to be spaced 10 inches at keel but heads of frames to be pulled forward so that bevel is reduced and easier framing made. Each frame to be secured to keel by two long chisel-point cut boat nails. Each frame to be in one piece from keel to sheer.

Planking: To be of white cedar to finish 3/4 inch thick, to be laid in narrow strakes (averaging 4 inches) and in as long lengths as possible; butts to be well distributed. No strake to have more than two butts. All butts to be formed by putting adjoining ends of plank together and fastened by five screws in each plank end to 1 1/2 inch oak butt block fitted tightly between frames the width of the plank. Garboard strake and strake at lower sheer to be of white oak or yellow pine and garboard at keel and ends of planking at stem and transom to be fastened by long screws. Each plank to be fastened to each frame by two galvanized chisel-point boat nails driven so that the point cuts across the grain of the wood and clinched over inside of frame about 3/4 inch. All heads of fastenings countersunk and covered with wood plug set in glue or white lead. Planking to be fitted with tight seams so that no light shows through, painted with white lead, caulked with yacht cotton and finished flush with putty or seam composition.

Sheer Clamp: To be of yellow pine 1 1/2 x 5 inches tapered slightly at ends. To be fastened at each frame by heavy galvanized wire nail riveted over ring and by galvanized boat nail. Clamp to be chamfered on inner edges. To be secured to stem by 1 1/2 inch oak breasthook secured by galvanized rod riveted.

Raised Deck Clamp: To be of yellow pine 1 x 2 1/4 inches secured to each frame by galvanized rivet and boat nail.

Bilge Clamps (Stringers): To be of yellow pine 1 1/4 x 4 inches secured same as Raised Deck Clamp.

Sheer Ribband: At lower sheer a white oak 2-inch half-round to be secured by galvanized screws 4 inches long.

Ribband Aft on Side: Extending forward from transom a white oak ribband of 1 1/2 inch half-round shall be fitted. Fastened by 3-inch long screws.

Transom: An oak knee 4 inches thick to be riveted in place on horn timber. Three vertical framing pieces 1 1/4 x 2 1/2 inches to be fitted between 1 1/4 x 2 1/2 inch cheek piece around outline of transom and similar piece of deck. Transom to be of two thicknesses of 3/4 inch wide cedar, seams of outer planking to come in center of inner planks. Laid in thick white lead between two layers of planking. All to be well fastened together, planed smooth, caulked and finished white same as topsides. Oak 1 1/2 inch half-round to be secured at top of transom.

Raised Deck Beams: To be of white oak 1 3/4 x 2 inches spaced and crowned as per plan, ends secured to clamp upon which they rest and into which they are to be notched at least 3/4 inch.

Raised Deck Planking: To be 3/4 x 2 1/2 inch tongued, grooved, and V-d cypress, fastened by galvanized nails, joined smooth and covered with 10 ounce canvas in one piece laid in thick lead paint while paint is fresh, edges turned up at all skylights, hatches, companionway, etc., and fastened under finish piece, and turned down over outer edges and fastened. Canvas at raised sheer covered by 1 1/2 inch oak half-round.

Bulkheads: All bulkheads to be of 3/4 x 3 inch tongued, grooved, and V-d cypress, white oak, or mahogany as desired. Where bulkheads meet the ceiling or side of the boat a quarter-round to be fitted.

Cockpit Floor Beams and Framing: To be of white oak 1 3/4 x 2 inches spaced as per plan. Ends to be fastened to 1 x 2 1/4 inch yellow pine riser. No crown, except that care is to be taken that center of cockpit is to be slightly higher than edges in order that no hollow shall be formed to collect water. All hatches to be framed out with the same size oak as used for beams. Two oak strongbacks between hatches at center to be 2 inches wide at top, 2 3/4 inches wide on under side and 2 1/2 inches deep. Fore and aft hatch framing pieces to be beveled with similar bevel given strongback and to rest snugly against strongback to distribute weight over entire frame. Strongbacks to be removable.

Hatches and Cockpit: To be same construction as cockpit floor. To be bound with 1/16 x 1 1/2 inch brass. Hatches to extend well beyond seam where beam and hatch frame meet so as to add to water tightness. Hatches fitted with flush ring and flush hinges.

Cockpit Floor: To be 1 inch white pine edge nailed to beams, seams caulked with yacht cotton, payed with paint, and filled with Jeffery's marine glue, or with seam composition. Putty is not recommended.

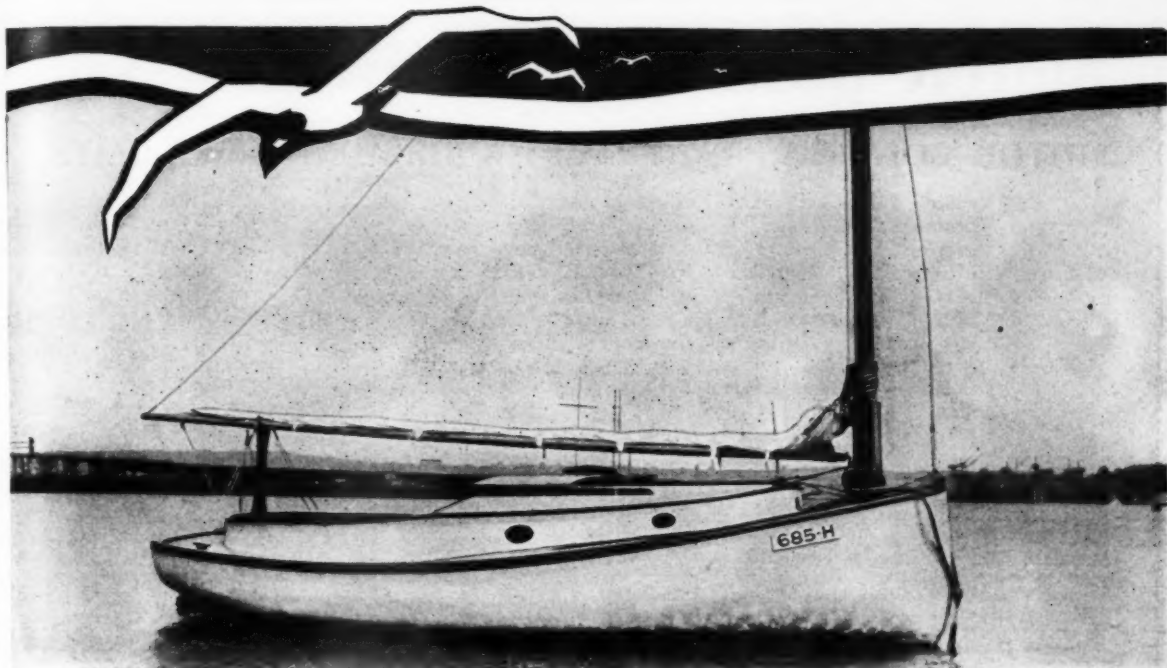
Companionway: Door to be 1 1/4 inch mahogany or oak with 3/4 inch panels. Slide to be 3/4 inch tongued and grooved mahogany or oak, framed out same as raised deck. Runs to be 1 1/4 inch mahogany or oak with groove cut for slide frame to slide in, 3/4 inch finishing pieces around opening. Sill 1 1/4 inch oak or mahogany, casing 3/4 inch oak or mahogany. Door fitted with two brass or bronze fast pin butts and bronze mortise ships' lock set with two knobs.

Aft Deck: To be same construction and finish as the cockpit floor. Cabin and Cockpit Ceiling, or Sheathing: To be 3/4 x 2 inch tongued, grooved, and V-d cypress, oak, butternut, or mahogany as desired. To be fastened with brads or escutcheon pins.

Cockpit Seat: To be framed out with 1 1/2 x 1 1/2 inch oak. Seat top to be 3/4 inch pine, front 1/2 inch mahogany, oak, cypress or butternut set at bottom into rabbeted sill and fitted with two doors for access to locker under seat. Locker doors fitted with two brass hinges and cupboard turn. Across top and bottom 3/4 inch finishing pieces to be secured, the latter secured to sliding frame of extension seat, to be 3/4 inch oak. Backboard 3/4 inch oak or mahogany hinged at the bottom.

Cabin Floor: To be 3/4 inch white pine, cypress, or cedar nailed to 1 1/4 x 2 inch beams. In center of floor, boards to be unfastened for a

(Continued on page 96)

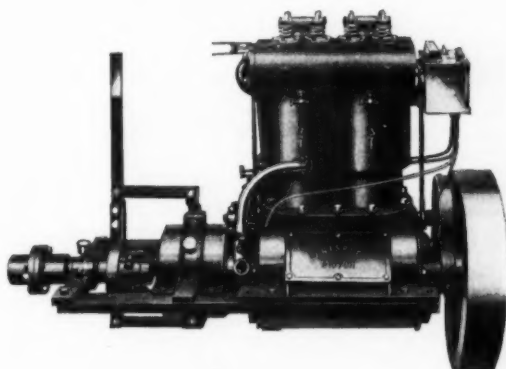


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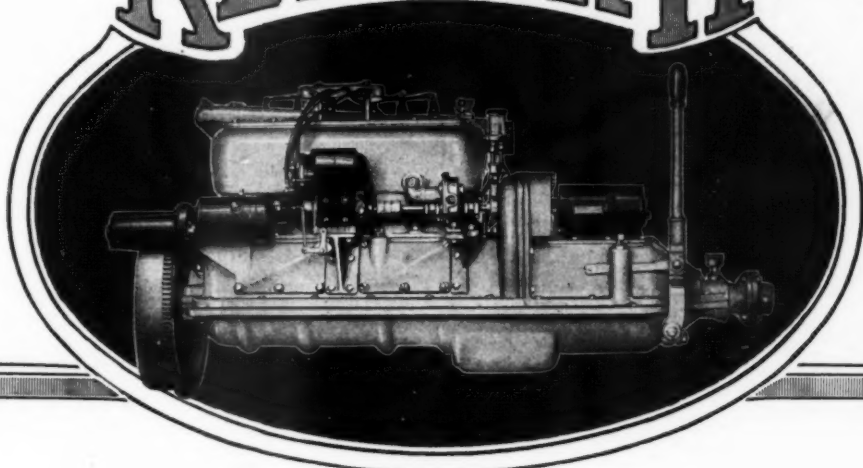
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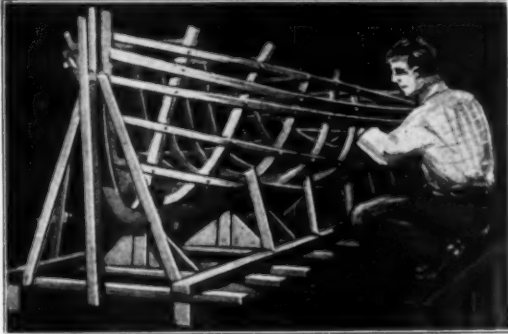
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## How to Build Nomad, a 34-Foot Cruiser

(Continued from page 92)

width of 18 inches so that boards can be lifted for access to bilge. Under side of floor to be painted before being laid. All ends of boards to be supported on beams.

**Brass Ports:** To be of 6 inch and 7 inch diameter, hinged to open, to have deep collar extending to just beyond outside of plank and rough edges of opening cut in plank covered by brass or composition ring. Rubber gaskets to be used under flanges of ports.

**Bitts:** On forward deck a galvanized bitt as shown 10 inches high and on aft deck two bitts 7 inches high shall be securely bolted to oak block under deck.

**Rail Cap:** Aft of raised deck planking and frames carried up to form sides of cockpit. A clamp 1 x 2½ inches to be fastened at head of frames and clamp, frame heads, and planking covered by oak or mahogany rail caps 1 x 4 inches secured with long screws, heads countersunk and covered with plug.

**Engine Bed:** To suit exact dimensions of the engine installed. Bed shown on plans is not drawn for any particular engine. Bed logs and floor timbers to be of 3-inch white oak, sound, surfaces fair and true and well bolted together. Floor timbers to be fastened to keel by two galvanized drift bolts in each and bed logs to be fastened to floor timbers by ½ inch galvanized carriage bolts with nuts and washers on under side to be accessible for tightening up at any time. Bed to be as high as possible under motor.

**Companionway Steps:** To be built to provide solid sides with steps fitted between, also vertical piece to extend from forward edge of each step down to next lower step. Latter to be hinged to give access to locker, each step extending back to provide locker between each step. All to be of 1-inch oak. Rubber treads on steps.

**Awning:** Frame to be formed of ¾ inch galvanized iron pipe bow frames secured to deck flanges and bent in one piece entire length from side to side. Oak, yellow pine, or cypress battens ¾ x 2 inches to be riveted to frames as indicated and over this frame 12 ounce waterproof khaki to be stretched and secured by double awning or curtain fasteners on plate. To these same fasteners the side curtains to be secured. Fasteners spaced about 20 inches. End and side curtains fitted and arranged to button onto awning curtain fasteners on deck and on topsides; curtains to be rolled up and secured by khaki strap buttoned onto awning curtain fasteners. Forward and aft end curtains to have celluloid window fitted each side of center line.

**Steering Gear:** A galvanized, mahogany trimmed 24-inch steering wheel with chain and sprocket control to be secured in housing on cabin bulkhead. To be connected by 5/16 inch galvanized flexible steel wire rope led along port side through 3 inch sheaves to 12 inch galvanized quadrant tiller secured on squared head of rudder stock. Latter to be 1½ inch diameter bronze riveted to 3/16 inch brass rudder plate; rudder fitted with pin at bottom fitted into brass skeg secured over end of keel. Rudder port to be brass pipe to fit stock, fitted with stuffing box at top. Tiller rope to have turnbuckle fitted in lines; sheaves and fairleads to be secured with screws, not nails, and tiller rope rigged so that bow of boat moves in same direction wheel is turned. Cockpit ceiling along port side over all tiller rope to be removable.

**Gasoline Tanks:** Two 14 x 60 inch seamless steel gasoline tanks holding 40 gallons each to be installed with 2 inch fill threaded into deck plate, with 3 pine chocks for tank to rest in and 3 galvanized steel straps to hold tank down, vent outlet with gasoline cock and ¾ inch seamless annealed copper tubing to be led from cock at each tank to tee and then to gasoline cock, strainer, and carburetor.

**Plumbing:** In bow a 20 gallon, 14 x 30 inch galvanized steel fresh water tank to be installed supported by 3 galvanized steel straps and wood chocking. Fill to be 2 inches through deck plate. Tank to have vent and outlet for ½ inch galvanized pipe with shut-off in line leading to lavatory and sink. Spring faucet at both fixtures. Sink to be 18 x 12 x 5 inch enameled iron. Lavatory to be vitreous china of owner's selection. Water closet to be of the owner's selection. Toilet room to contain 24 inch towel bar, toilet paper holder, soap dish, tumbler holder, mirror, six coat and hat hooks. Galley to contain 24-inch towel bar, soap dish, tumbler holder, strainer in sink, and 12 brass 1 inch cup hooks.

**Spars and Rigging:** Mast to be of spruce of 4 inch diameter at deck, tapered to 2 inches at shoulder. Yard to be 7 foot long and 2 inch diameter tapered at end to be bolted to mast. Mast squared at heel and stepped into oak block on deck. Just above awning mast to be arranged to hinge aft by two bolts through mast, the lower bolt to be removable. Fore and side stays to be 5/16 inch steel wire rope with turnbuckles secured to eye bolt in stem head and chain plates at sides. Two 3 inch galvanized cleats to be fitted. At top of awning ¾ x 1½ inch galvanized iron strap to be secured flat on awning, twisted to lie in vertical plane where it passes around mast closely fitting same and twisted again to lie in horizontal plane and be fastened to awning top. Yard to have signal halyard and block and mast to have truck and halyards.

**Equipment:** Set of cushions for cabin and cockpit, two galvanized pipe frames for berths, 2 foot x 3 foot American yacht ensign, bow and stern flag poles, sockets, bow chocks, 6 inch galvanized, stern chocks, 6 inch galvanized, 20-inch galvanized fog horn, fire extinguisher, 8-inch fog bell, two 3-inch galvanized ventilators for engine room ventilation, 1¼ polished brass ventilator similar to fig. 225 Durkee for aft deck, 2½ inch galvanized chain deck pipe, compass, liquid with 4-inch card, Zundel electric horn with battery, set of oil running and anchor lights, set of spark and throttle controls, reverse lever, hand bilge pump of rotary type secured to bulkhead and piped over board, 8-foot boat hook, two burner stoves of owner's selection, six life preservers, two 30-foot ¾-inch diameter manila rope tie lines, anchors and cable of the owner's selection, depending upon waters in which boat is used, folding dining table, brass coat and hat hooks, in three closets, 2 inch lead pipe scuppers, bronze patent shaft log and flexible stuffing box.

**Painting and Finish:** Inside of hull to be given one coat of priming paint. Top sides given coat of priming paint and at least three coats of yacht white, including transom, sheer ribband, rubbing ribband on side, etc. Underbody to be given two coats of best anti-fouling copper paint. Canvas covered raised deck painted three coats of salmon paint. Cockpit floor finished bright. Cabin floor painted three coats of gray. Interior finish white with mahogany, oak, butternut, or cypress trim to suit owner's taste. Boat to be thoroughly cleaned and cleared of dirt, shavings, chips, etc., before final painting and completion.

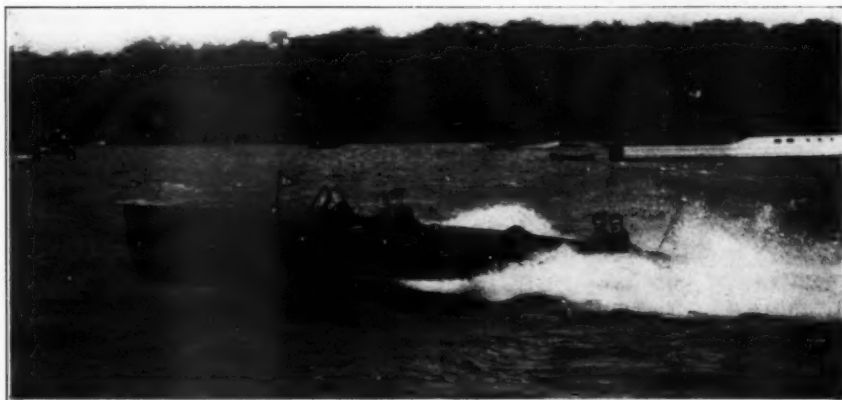
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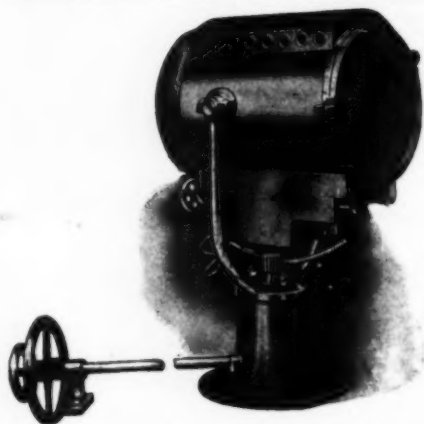
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## From the Great Lakes to the Sea

(Continued from page 9)

docking facilities to some extent, is much appreciated by a stranger sailing inland for the first time. We hitched our boat under cover just as a farmer hitched his horse in a livery shed, and slept that night ashore.

The next day brought us to Ogdensburg and beyond to the chain of canals by which navigation of the St. Lawrence is made possible for the Great Lakes steamers. At every stop we sought advice about shooting the rapids and received not one syllable of encouragement and many words of warning. Still, I should have been willing to try at least one of the danger spots—the Galops, for instance—if we could have secured the services of a competent pilot and if (this was the more important hypothesis) he could have been trusted to make allowance for our low freeboard and keep us out of places which, though deep, were unhealthy for the little fellow. But we didn't find the pilot, and as there is little fuss and feathers about the use of the canals we followed them consistently. Nevertheless, as we passed the head of each rapid and saw the slick water gliding down at an angle from the horizontal which is easily measurable by the eye, we felt a strong inclination to head into the current and try our luck. Yet this temptation was very neatly balanced by the thought that the motor might choose just such a moment to knock off for the day and permit us to be carried broadside on into the turmoil—and so we followed the gospel of safety first.

For the information of those who know only vaguely of the St. Lawrence Canal system it may be well to interpolate here a few facts concerning it. The chain starts at Cardinal, 9 miles below Ogdensburg, and continues to Montreal, passing around the Galops, the Rapide Plat, the Farran Point, the Long Sault, the Coteau, and the Lachine rapids. Thus there are six canals, which total 46 statute miles' length, and all told there are 21 locks giving a fall of 206 feet. No toll is charged, and a let pass is given to the owner or captain of a motor boat or yacht after he has been admitted to the first lock and while his craft is being lowered or raised. Thereafter it is only necessary for the owner to show the pass or state to tenders at the commencement of subsequent canals that he has one. If a boat is bound for Lake Champlain, as ours was, the pass will be written to include the canals on the Richelieu River as well, and is not given up until the boat's arrival at Chambly, Que., although it must be countersigned at Montreal.

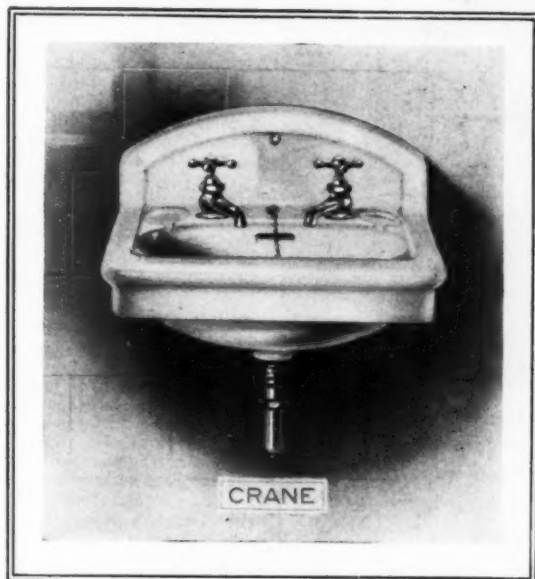
The above recital of the procedure necessary for private boat navigation of the Canadian canals is given in some detail because it contrasts sharply with the complicated and needlessly annoying formality exacted of users of the New York State canals. All of the canals on the St. Lawrence are of Canadian ownership, there is always an abundance of water, and each lock is opened without an exasperating wait. The banks are well riprapped, and so far as I know there is no speed limit for small craft.

In our own case the performance of the motor determined the standard speed. After numerous stops for information and a night spent in a farmhouse along the Cornwall canal, we reached the city of Cornwall and I set about the business of reconciling my shipmate to a day wasted at that point. He, being on a limited vacation, was anxious to cover all the ground possible. I, having had more experience in cruising, was anxious to keep off the ground as much as possible, and as it happened that the charts for which I had written to the Dominion Government at Ottawa were delayed and hadn't reached me, I was determined to remain at Cornwall until they arrived by post. My cousin had never had that gone feeling which overcomes a navigator when he finds himself in a tight situation without an accurate chart.

As a timekiller I first suggested removing a couple of the valves to have them tested on a lathe and straightened if they needed it. They were removed and tested, but when I endeavored to replace them I found that my right arm, which had been paining me for two days as the result of an abrasion of the skin, refused to function against the pressure of the heavy valve spring. So while my cousin, unaccustomed as he was to the ways of gasoline engines, attempted to replace the spring without losing the cap that holds the stem, I visited a doctor and learned that I had acquired blood poisoning in the right elbow. The doctor recommended my stopping the night in the hospital, and this was all the excuse I needed to lie over for a day and wait for the charts. My cousin, with the assistance of a small army of boys who stood by in mass formation awaiting their turn to reach into the bilge for lost springs, valve caps, pins, petcocks, and end wrenches, got the motor together and we called it a day.

At supper time I had myself admitted to the hospital where I found to my sorrow that a seagoing appetite does not enter into the calculations of a diet kitchen's chef. The evening meal

(Continued on page 100)



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#### Solves: The Shallow Water Problem The Weed Problem The Starting Problem

In carrying or installing position heaviest part weighs 40 lbs.

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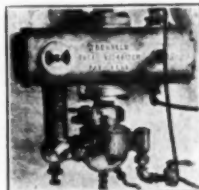
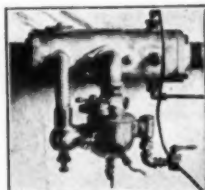
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272	6	HP.	Lathrop, Standard Model.....	\$150
275	80	HP.	Wolverine, with prop. and Rev. Gear.....	2500
277	16	HP.	Lathrop, 2 cyl. 2 cye.....	285
287	24	HP.	Lathrop, 2 cyl. 2 cye. and Rev. Gear.....	500
290	36	HP.	Lathrop, 3 cyl. 2 cye. and Rev. Gear.....	735
292	5	HP.	Lathrop, 1 cyl. 2 cye. (overhauled).....	95
295	16	HP.	Regal, 4 cyl. 4 cye. Rev. Gear Mag. L. Hand.....	400
298	24	HP.	Lathrop, 2 cyl. 2 cye. and Rev. Gear.....	500
300	3	HP.	Faultless Seine Purser, 2 winch heads.....	135
302	5	HP.	Wolverine, with Rev. Gear.....	175
303	16	HP.	Lathrop, 2 cyl. 2 cye. with coupling.....	310
304	4 1/2	HP.	Lathrop, 1 cyl. 2 cye.....	85
306	12	HP.	Bridgeport, 2 cyl. 2 cye. & Rev. Gear.....	255
307	16	HP.	Lathrop, 2 cyl. 2 cye.....	287
310	7 1/2	HP.	Lathrop, 1 cyl. 2 cye.....	155
312	20	HP.	Lathrop, 2 cyl. 2 cye.....	380
316	5	HP.	Bulldog Holst with magneto.....	200
317	7-8	HP.	Palmer 2 cyl. 4 cye. & Rev. Gear.....	150
320	215	HP.	Van Blerck Model J 8 cyl., Elect. Start.....	1850

## From the Great Lakes to the Sea

(Continued from page 98)

consisted of a mess of pot-cheese, a lettuce leaf, and two slices of tomato, and it didn't appreciably dull my hunger for the next morning's breakfast of one poached egg and a slice of toast. The technique of putting on a hospital night-shirt bothered me somewhat and I was annoyed to find that it is one thing to take a room in an institution of this sort and quite another to give it up when you think it's time to leave. But the succession of hot poultices that were applied to my arm did me good, and with a little argument and persuasion I regained possession of my clothes after breakfast and was privileged to resume the cruise. Further treatment in Montreal the following day restored in time the use of my cranking arm.

Our charts having arrived in the first mail, it wasn't long after my release from the hospital before we were shaking the dust of Cornwall from our feet. I even went the customary shaking process one better by shaking my shoes from my feet and leaving them on the bank of the canal when I changed into sneakers before boarding the boat. This was an accident, however, and it caused me some embarrassment that night to sally into the Windsor Hotel in Montreal shod in canvas shoes that had seen their best days long before the war. Needless to say, the hotel lobby was crowded with charming members of the observant sex, and it is still more needless to relate that the clerk noticed my feet as we entered the hotel and informed us that there were no rooms available. I might have told him that I didn't intend going to bed with my shoes on, but I determined instead to warn fellow cruisers to put on their spats and wrist watches before attempting to secure lodging in fashionable caravansaries.

From Montreal to Sorel, where we entered the mouth of the Richelieu River, is a distance of 44 miles, and this we made in a little less than three hours at our standard cruising speed of 12 miles an hour. The current which varies from 1 to 3 miles an hour (and even attains 10 miles in the rapids) helped us some, but we were enabled to make our exceptional time by following in the wake of a river steamer which left Montreal just behind us. If there had been any doubt in my mind about the drawing power of a steamer's wake it was removed by this experience, for, after we had been overtaken by the steamer and had maneuvered to ride just forward of the crest of the second wave behind her, we set our throttle for the 12-mile speed, and boiled down the river at 15 miles. The sensation was exhilarating, for we had the effect of running through rapids, and the run was economical both in fuel and in navigating.

Sorel, where we stopped for lunch and found that the few restaurateurs had left en masse for a county fair and horse race, is a quaint town slightly reminiscent of the south of France. Few of the inhabitants speak English, and there as well as at other stops in French Canada my shipmate had to do the talking for the crew. He had been in the army, and what he didn't know about ordering oefs in a French ham-and-offery is hardly worth knowing. He proved himself capable, also, of securing hotel accommodations that night in a little town part way up the Richelieu River, but the night after that at the hamlet of Sabrevoir, near the international boundary line, he almost met his Waterloo.

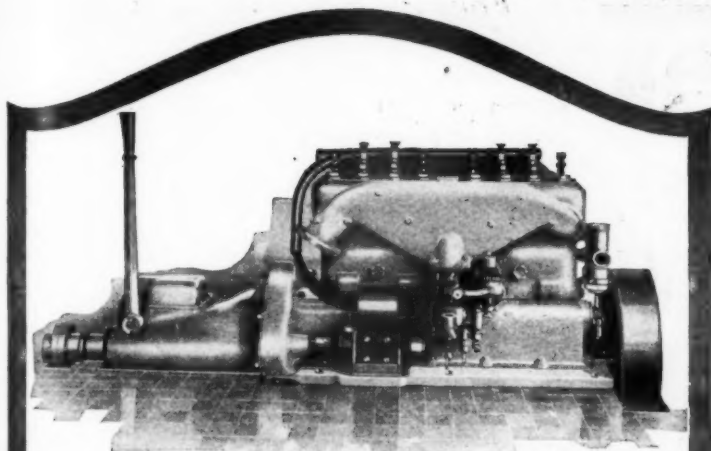
Overtaken at dusk by a squall and violent thunderstorm, we had put in to a dock on the east bank of the river to wait for the heavens to clear. Then we had walked a half mile up a muddy lane to the muddier main road and applied at the first house for accommodation for the night, only to be denied admission. But the woman of the house told us in French that if we walked down the road for a piece we would find a house where lodgers were taken.

As my cousin was the French scholar of the ship's company he agreed to go room-hunting while I returned to the dock and secured the boat for the night. I was delayed by one thing or another and it was an hour later when I returned to the road at the head of the lane and saw him walking toward me with a borrowed lantern. From that I guessed that he had found a room, and from the mud on his feet and legs I knew that he had had to walk far to find it. His experience, as he told me, was disheartening from the first house up to the eleventh, for at each he was told through closed and bolted doors that no lodgers were taken, but that at the *prochain maison à droît*, or it may have been the *grand maison*, or the *maison blanc*, or some other kind of French house he would find people who were hospitably inclined. Always he spoke in his French and always the Canucks spoke in theirs, until finally in answer to his knock he heard a word that sounded like "Come." He opened the door and delivered his usual (and heretofore useless) question, "*Parlez-vous anglais?*"

The answer, spoken by a farmer in the presence of his wife,

(Continued on page 102)





## With This Motor, Driving a Boat Is Easy as Driving a Car

No longer has the landlubber "got anything on you." No longer need you envy him for the calm, confident manner with which he gets into his car, puts his foot on the starter and scoots away.

You can do all this and have the same confidence in your Motor Boat provided you power it with a Caille Aristocrat motor. It's the automobile engine of the motor-boat dominion. It has an electric self-starter, furnishes electric lights and is controlled by instruments on a dash, just like a high-priced car.

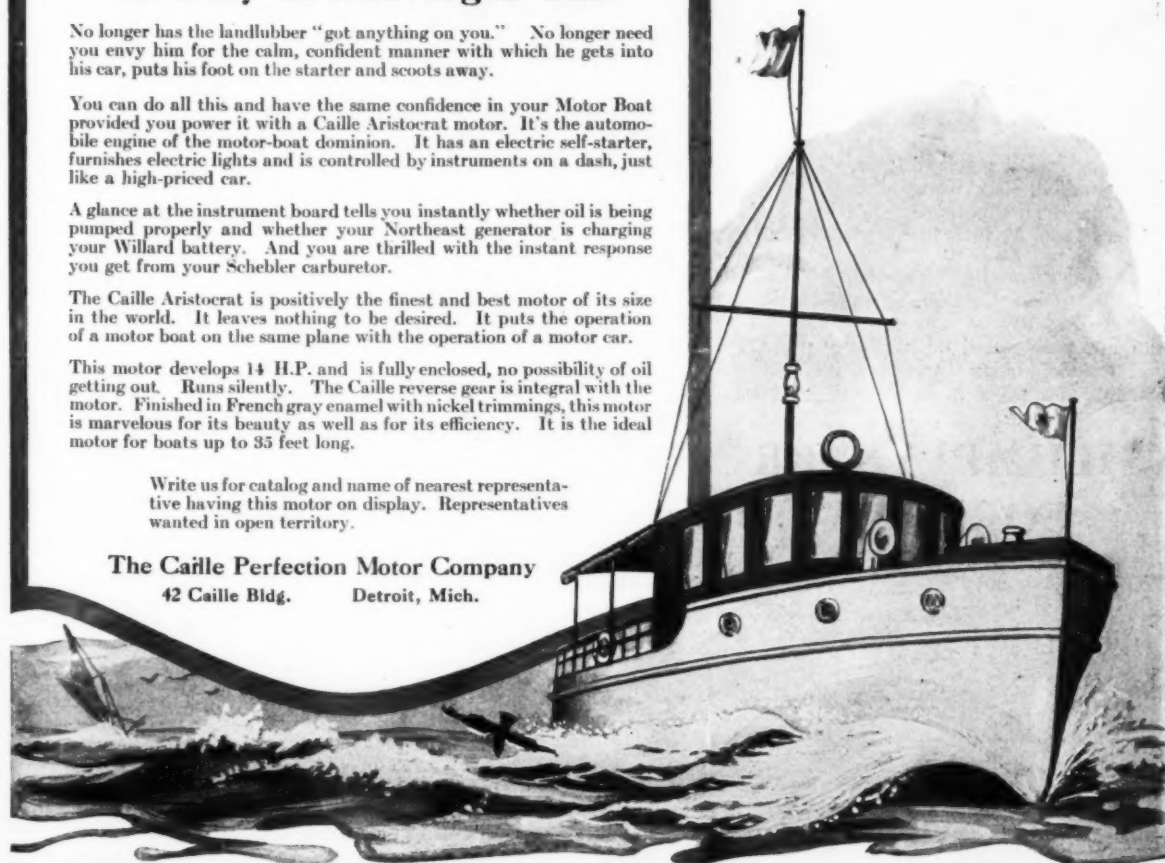
A glance at the instrument board tells you instantly whether oil is being pumped properly and whether your Northeast generator is charging your Willard battery. And you are thrilled with the instant response you get from your Schebler carburetor.

The Caille Aristocrat is positively the finest and best motor of its size in the world. It leaves nothing to be desired. It puts the operation of a motor boat on the same plane with the operation of a motor car.

This motor develops 14 H.P. and is fully enclosed, no possibility of oil getting out. Runs silently. The Caille reverse gear is integral with the motor. Finished in French gray enamel with nickel trimmings, this motor is marvelous for its beauty as well as for its efficiency. It is the ideal motor for boats up to 35 feet long.

Write us for catalog and name of nearest representative having this motor on display. Representatives wanted in open territory.

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# CAILLE

## Aristocrat Motor

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# Columbian Bronze Propellers

**C**OLUMBIAN Boat Equipment has become a synonym for the "utmost obtainable" in good equipment.

Columbian Bronze Propeller Wheels are installed on such a majority of the more successful boats that it has now become the logical thing for the well-informed boat owner to specify Columbian Wheels.

In addition to designing and building a complete line of Bronze Propeller Wheels for ALL types of boats, no matter how small nor how large, Columbian standard of efficiency and dependability is obtainable in a full line of Columbian Boat Equipment, such as rudders, bronze shafting, stern tubes, stern bearings and stuffing boxes in sizes from  $\frac{3}{4}$  inch to 8 inches diameter.

Write today for the "Propeller Questionnaire" and also the Columbian Catalog "Propellers in a Nutshell"—both will gladly be sent on request. If you desire to increase your speed or have any propeller problem to solve a Columbian Questionnaire will enable you to present your problem to us and we can help you.

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## From the Great Lakes to the Sea

(Continued from page 100)

was deep-voiced and reassuring. It was, with substitutions necessary for publication in a magazine like *MoToR BOATING*. "You're blankety-blank right I speak English. What's on your mind besides your hair?"

In another three minutes lodging had been arranged for, and when my cousin, the lantern, and I retraced his steps down the muddy road we sat down to the best supper of country sausage and griddle cakes and maple sugar, and fried eggs and bacon, and cake and coffee, and pudding that I have ever cased from plate to mouth.

The Richelieu River which we left the following morning is a winding, placid stream 79 miles long from its course in Lake Champlain to its mouth in the St. Lawrence, and it is navigable at all stages of the water for vessels drawing no more than 6 feet. The current is not swift and the only rapids occur between St. John and Chambly where a canal 12 miles in length permits navigation around them. The canal is old, with grassy banks, and tow-path, and the 6-mile speed limit must be observed. All bridges are of the swing type. The river itself is not well marked, although usually a mid-stream course clears all dangers. Charts are not issued by either the United States or the Canadian Government, but are published privately and may be obtained from M. Henri Melancon, at 119 Daly Ave., Ottawa, Can.

Like law-abiding citizens our first act after crossing the boundary line was to stop at Rouses Point and report to the customs officials that we had entered without contraband. Then, having annexed a meal at a regular restaurant (the first since leaving Montreal) we headed down or up—the trouble with a lake or river that empties to the north is that no two persons ever agree which direction is down and which up—we headed up Champlain and put in for the night at Plattsburg. The next day, proceeding about our question-asking business on both sides of the lake, we worked as far south as a village at the narrows where at a hotel we were mistaken for revenooers and were denied lodging.

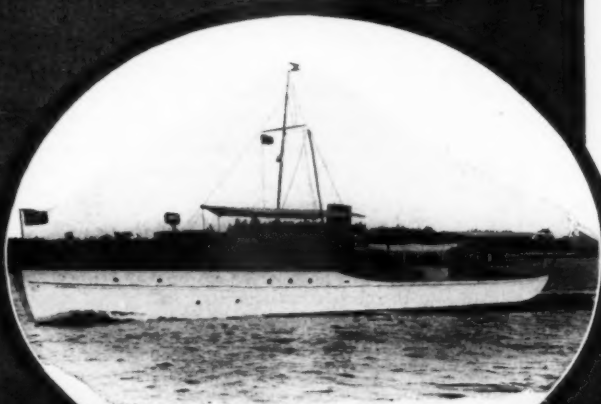
But after we had been artfully questioned and we had artlessly revealed our peaceable occupation we were given supper and informed by the kind hostess of the inn that there was a room available. But a dance was in progress and as we thought that the liquor would flow more freely without our disturbing presence, we bunked aboard under the stars. In the morning watch we partially waked to hear three tipsy gentlemen emptying case after case of empty bottles into the concealing waters of the lake, with the sonorous accompaniment of Dead men tell no tales repeated after each splash—and we knew that the dance had been a success.

Having by this time been underway nearly two weeks, we had been favored with weather which was good except in spots. But the rain came with the morning and stayed with us to Whitehall where at noon we had our breakfast, and continued during the pleasant hours spent in waiting for telegraphic permission to use the State canal, and kept it up until toward nightfall we made fast to a bank of the canal and went ashore for the night. The following day, a Saturday, was marked by a back-kick of the motor which filled the cylinders with water, delayed us two hours, and put three spark plugs permanently out of commission. Running on the remaining three at 7-mile speed we kept pace with an alleged 10-mile cruiser until we reached the town of Mechanicsville where new plugs were purchased. After that, barring the customary delays at the locks, affairs moved smoothly, and before dark we made Watervliet where the boat was anchored bow and stern and left to rock in the swells of the Troy steamers.

A week later, resuming the cruise with an editor substituting for my cousin, the little boat, not the least dismayed by her 800-mile trip, made the distance to New York in three days' leisurely running. I immortalized myself at the windup of the cruise by going astern with a line dangling over the counter—and that, by the way, is the first time I have ever heard of that accident happening to a motor boatman. But the luck that had been with us from the start prompted me to stop the motor just as the propeller was beginning to get intimate with the line, and I was spared the ignominy of going overboard to untangle the wheel in sight of the verandah-going sea dogs of the North River fleet.

Our cruise, if it proved anything—and it wasn't meant to—showed that men who are not too insistent about regularity in their meal hours can go indefinitely without galley facilities, eating ashore as the appetite moves, and sleeping wherever they care to lay their heads. But chiefly it proved that if you want to have a good time in a motor boat all you have to do is cast loose from your home moorings and go voyaging through strange waters, seeing new places, making new friends, and riding perpetually on the crest of the wave of enjoyment.

# DIESEL ENGINES for PLEASURE YACHTS



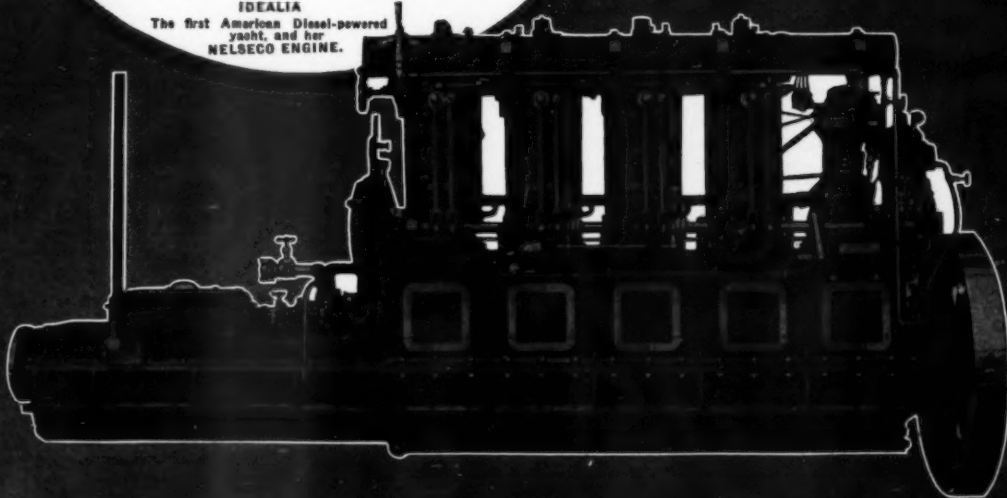
**IDEALIA**  
The first American Diesel-powered  
yacht, and her  
NELSECO ENGINE.

**I**DEALIA, 84' x 14' x 3', is powered with a 120 H.P. NELSECO Diesel engine which drives her 14¾ miles per hour, using only six gallons of fuel oil per hour. It would take 15 gallons of gasoline to produce the same power, at approximately ten times the cost.

Everyone concedes the advantages of Diesel engines for commercial boats. The case of Idealia and other successful installations prove that NELSECO engines are equally suitable for substantial pleasure yachts and large cruisers.

*Let us send you complete information.  
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**THE NEW LONDON  
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1 R.H. and 1 L.H.  $5\frac{3}{4}$ " bore, 7" stroke, Wisconsin marine motors. Complete with ignition, carburetion, and Seabury reverse gears.  
Price—\$5,000 for the pair.

1 R.H. and 1 L.H. 3-cylinder  $7\frac{1}{2}$ " bore, 9" stroke, Automatic heavy duty motors. Complete with propeller shafts, propellers, and propeller equipment.  
Price—\$850 each or \$1,700 for the pair.

1 R.H. and 1 L.H. 8-cylinder  $6\frac{3}{4}$  x  $7\frac{3}{4}$  Duesenberg high speed marine motors. These motors are complete with standard equipment.  
Price—\$5,000 for the pair.

1 R.H. and 1 L.H. 8-cylinder Model F-300 Sterling engines. Complete with standard equipment.  
Price—\$3,500 each.

1 4-cylinder 28 H.P. Clifton marine engine. Equipped with imported Bosch magneto.  
Price with standard equipment—\$1,000.

1 50-Light Murray & Tregurtha direct connected set.  
Price—\$250.

1 Model F M 8-cylinder  $5\frac{1}{2}$  x  $6\frac{3}{4}$  Sterling engine. New. Has Bosch electrical and ignition equipment. Engine complete with propeller equipment.  
Price—\$2,500.

1 R.H. and 1 L.H. 6-cylinder  $6\frac{1}{2}$ " bore, 8" stroke, open base Murray & Tregurtha engines.  
Price—\$3,000 each.

1 Model F-4 4-cylinder  $7\frac{1}{2}$  x 10" heavy duty M. & T. engine.  
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1 R.H. and 1 L.H. 4-cylinder  $6\frac{1}{2}$  x 8 Model E-4 M. & T. engines.  
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1 4-cylinder  $8\frac{1}{2}$ " bore, 11" stroke, 60-80 H.P. M. & T. rebuilt engine.  
Price—\$3,000.

1 Universal 37 Ampere direct connected light set.  
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1 Herrischoff steam plant.  
Price—\$2,800.

All Engines Subject to Prior Sale

**MURRAY & TREGURTHA  
CORPORATION**

Atlantic

Massachusetts

## Rules of the Road Made Easy

(Continued from page 72)

### OVERTAKING

See Figs. 4, 10 & 11

A boat is considered to be overtaking another when she is approaching the course of the leading boat from more than two points abaft the beam of the leading boat. In such a situation the rights all rest with the leading boat, the overtaking vessel having no rights whatsoever.

### WHEN CROSSING AND OVERTAKING RESULTS IN CONFLICT

When one vessel is both overtaking and crossing another, the overtaking rule prevails. A crossing vessel which has come up from more than two points abaft the beam of the leading vessel must keep clear even though she is on the starboard side of the other. She is not free of this obligation even after she draws ahead on the beam and bow of the other vessel until she is free and clear of her.

### BOAT BACKING

See Fig. 21

A boat backing sounds three short blasts of her whistle. In the case of a boat backing, her stern for the time being is considered her bow. Passing signals are exchanged exactly as if such a boat were proceeding ahead, considering that her stern is her bow.

### BOATS COMING OUT OF A SLIP

See Fig. 2

To boats coming out of a slip or moving from docks or piers, the rules of the road do not apply until the vessels are entirely clear of the slip or pier. As a boat starts leaving her pier or slip, she should sound one long blast on her whistle. As soon as she is clear of such obstructions, the regular rules of the road and rights of way apply.

### MEETING IN WINDING CHANNEL

See Fig. 25

When two boats are approaching each other in a winding channel, they must be considered as meeting head on and not as meeting obliquely or crossing. Each boat should keep to the starboard side of the channel. Good judgment provides that when two boats are to meet at a narrow bend in the channel that the one which is navigating against the current shall stop until the boat navigating with the current has safely passed.

### RIGHTS OF FISHING VESSELS

See Fig. 6

Boats of all types while underway must keep out of the way of boats fishing, including fishing boats at anchor, or with nets, lines and trawls. No vessel is permitted to engage in fishing in a channel or fairway nor to obstruct navigation in any way. The boats underway should give all boats fishing a wide berth in order not to disturb them by their wash.

### A BOAT OPERATING UNDER BOTH SAIL AND POWER IN DAY TIME AND AT NIGHT

See Figs. 22 & 23

Under the Motor Boat Act of 1910 any boat of less than 65 feet in length, with the exception of tugs propelled by steam, is designated as a motor boat. Motor craft of a greater length fall into the class of steamers.

The rules also provide that any vessel (motor boat) propelled in whole or in part by machinery shall be considered a motor vessel—a very clear and concise statement, the meaning of which there can be no doubt. But not content to leave the matter in this way, the Motor Boat Act further provides that at night a vessel using both power and sail shall carry only the lights of a sailing vessel—that is, the colored side-lights, but no white lights.

The situation now becomes very interesting as well as complex. For a boat (power) having a length of more than 65 feet a special day mark is specified when the boat is under both sail and power. For a motor boat (less than 65 feet in length) there is no such provision. It will be realized that there are times when it is difficult if not impossible to determine from even a short distance even in the daytime whether a boat which has the outward appearance of a sailing vessel is using power in addition to her sails. Should she be a sailing craft her rights will be supreme over every other type of craft, but should she be an auxiliary, providing her motor is running, such a boat will have no more rights than though she had no sails.

The situation just described may lead to very dangerous complications, as one will realize. A certain action and change of course may be planned on the assumption that the oncoming vessel is strictly a sailing vessel. Should she be an auxiliary, which would call for action of an entirely different nature, her identity might not be discovered until the execution of the action based upon the first assumption was well under way. In the meantime, the crew of the vessel carrying sail, inasmuch as there is no reason for doubt to exist in their minds as to the proper action of the other (motor) vessel as well as their own, may have changed their own course (probably correctly) in a manner which will be exactly contrary to the expectations of those on the vessel carrying no sails. Both boats might

(Continued on page 106)

## Reliable as Your Good Right Arm



**J**OES Reverse Gear responds to the lever as your good right arm obeys your will. Forward or reverse, promptly, unfailingly Joes Gear is ready to transmit to your propeller just the power you want when you want it.

Joes Reverse Gears handle the power of heavy oil burners, fast race boat and hydroplane engines, all in the same capable, dependable way.

Write for literature describing Joes Gears for every need and speed, and telling about Joes reliable One-Way Clutches and Safety Rear Starters.

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# JOES REVERSE GEAR

**80%-88% Reverse  
Speed Ratio**

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England—J. King & Co., 10 Church Row, Limehouse, E. London.  
Norway—Arendahl Motor & Machine Co., Arendahl.  
Turkey—Societe Generale d'Automobiles, Constantinople.



## Duties of a Regatta Committee

(Continued from page 27)

- See that patrol boats carry life-saving equipment
- Make preparation to take care of fire or accident to racers or spectators' boats
- Render assistance in case of accident
- Do not cause undue wash or waves—run slow
- (G) *Committee in Charge of Course*
  - Engage surveyor to lay out race course. Have surveyor make chart of course, showing turning buoys, ranges, etc.
  - Furnish race committee with official chart of course, certified as being accurate in length by the surveyor.
  - Provide emergency methods for accidents to contestants' boats, sinking, raising derricks, etc., and supervise their use if required
  - Arrange for receipt of boats which come by rail, putting into water, transportation to race course, etc.
  - Assign anchorage for spectators' boats
  - Arrange for handling of traffic that would interfere with racers
  - Have all buoys and stakes marked with designated flags
  - Arrange for necessary lights at night
  - Establish starting and finishing line
  - Determine where judges of the course are to be stationed
  - Determine location of and place stakes and flags to mark course for security of spectators' boats
- (H) *Entertainment and Publicity Committee*
  - See that contestants, committees, visiting yachtsmen,

- patrol officers, invited guests, etc., receive
  - (1) Invitations to all social functions
  - (2) Cards to clubs
  - (3) Hotel accommodations
  - (4) Transportation from hotel to race course
  - (5) Meals when required to be at race course
- Provide yachts or seats for visiting ladies
- Provide identification badges for officials
- Provide cards to reviewing stands
- Arrange policing of docks and bridges (accidents)
- First aid kits at dangerous points (for police)
- Fire extinguishers at available points (for police)
- Provide bulletin board at headquarters on which to post all notices and instructions
- Provide for newspaper reporters, photographers, movie men
- Get out notices of entertainment and distribute same
- Select special entertainers and provide their transportation
- Arrange for advance publicity in all daily papers
- Arrange for getting results of race, time, speeds, etc., to reporters and press
- Make all arrangements for spectators on land, grandstand, tickets, parking of cars, traffic regulation, policing, etc.
- Arrange entertainment of visiting officials, contestants, etc.
- Arrange for contestants' wants and wishes ashore

## Rules of the Road Made Easy

(Continued from page 104)

give way in the same direction at the same instant, presumably to allow the right-of-way boat to hold her course and speed. A collision under such circumstances is almost inevitable.

A common sense action in a situation where two boats are approaching each other in the daytime, one of which is operating under power alone and the other under both sail and power, is for the one which is likely to cause confusion as to her status of being a sailing or motor craft to be prompt and generous with her whistle signals and take whatever action is possible in order to communicate her status to the other craft. Strictly speaking, neither boat has the right of way if only the types of the boats are considered. The relative position of the two boats must decide which is to hold her course and speed and which boat is to keep clear. Both craft are motor boats under the law. However, the crew of the vessel carrying sail in addition to her power must be careful to take no action which will confuse the other craft.

At night or in the fog everything is reversed. The rules which apply in the daytime are discarded after sundown and in a fog. In other words, the auxiliary which has been working under power and sail under the status of a motor vessel now becomes a sailing craft and follows all the rules of the road as applied to the latter type of vessels. While it is the duty of the auxiliary in the daytime to use every means to communicate her status to the strictly power vessel, at night she must follow the reverse order. She must exercise great care not to permit an approaching motor craft to know that she, too, is operating under power. She is carrying only the lights for a sailing vessel and must act accordingly.

At night a vessel under power and sail is the privileged vessel, she must hold her course and speed, must not give passing whistle signals and must keep a sharp lookout astern in order to show a white light or flare-up upon being overtaken by another vessel.

If the vessel using both sail and power is more than 65 feet in length, then she is no longer classed as a motor boat and this difference of classification between day and night sailing is no longer applicable. A boat of over 65 feet in length using both sail and power at one time is classed as a steam vessel both day and night and should be handled accordingly.

### RULES OF ROAD BETWEEN SAILING VESSELS

See Fig. 12

Rights of way between two sailing craft depend upon whether they are sailing close-hauled, sailing free and also upon whether they are on the port or starboard tacks.

### SAILING VESSELS HAVE RIGHT OF WAY OVER MOTOR CRAFT

See Fig. 13

A sailing vessel has the right of way over a motor craft in all situations except when the sailing vessel is overtaking the motor vessel, in which case the sailing vessel must keep clear. A sailing vessel is not required to stand in stays, tack, wear or jibe to allow another vessel to pass. A sailing vessel must observe the difficulties under which the burdened vessel may be and give due attention thereto. A motor vessel must observe

any condition which would prevent a sailing vessel from finishing its tack and must be prepared for a sailing vessel accidentally missing stays, jibing, etc. A sailing vessel must not embarrass a motor vessel.

### RIGHTS OF WAY OF ROW BOATS

Row boats must take into consideration their ability to maneuver promptly and more readily than motor craft, and when they can keep out of the way of motor or sailing craft by a few strokes they must do so. When row boats are in distress or where there is any uncertainty of their movements, a motor or sailing vessel must keep clear of them. Small boats capable of being handled by oars must be equipped with them even when their usual power is either sail or motor. Such boats must use oars in order to avoid collision whenever necessary.

### RIGHTS OF TOW BOATS

A tug with a tow is responsible for her tow and they are to be regarded as one vessel. A tug with a tow has no special rights under the rules. Moreover, as such an outfit is unwieldy and hard to handle, a tug has increased responsibilities due to these facts and is not excused from obeying all the rules applicable to a vessel without a tow. Steam and motor vessels upon passing a tow when there is a chance that their wash or waves will cause damage, must slow down.

**NOTE: Lesson No. 2, which will be published in the March issue, will cover Types and Classes of Motor Boats and Other Power and Sailing Vessels and Lights for All Classes of Vessels. In the March number also will be printed the list of questions on Lesson No. 1 (February issue) which are to be answered by those enrolled in the Correspondence Course. Answers on Lesson No. 1 should reach us by March 30, 1921.**

## New Records Possible in Florida

(Continued from page 12)

and L. L. Tripp of Albany, N. Y.

Gerald T. White of New York, editor of *The Rudder*, will act as chief timer. H. L. Stone of New York, editor of *Yachting*, will assist Mr. White. Commodore H. A. Parsons of the Cleveland Yacht Club and M. S. Cornell, Jr., of Middletown, Conn., will serve as assistant timers.

The Technical Committee in charge of competing boats will be in charge of Arthur J. Utz of Buffalo, N. Y. Mr. Utz is connected with the Hall-Scott Motor Co. W. E. Gibb of the Frisbie Motor Company of Middletown, Conn.; Walter H. Moreton of Boston, Mass., and F. D. Green of Daytona Beach will also serve on this committee.

The Patrol Committee will consist of H. R. Duckwall, owner of Hoosier V.; G. A. Wood, owner of Miss America, and L. A. Young, owner of the express cruiser Olalen.

The Course Committee will consist of A. C. Newby and John Levi, two of Miami's famous citizens. Guy W. Livingston of the Miami Chamber of Commerce will act as chairman of the Entertainment and Publicity Committee.



Florida's Newest and Most Beautiful Hotel  
**THE FLAMINGO**  
 Miami Beach, Florida  
 AMERICA'S WINTER PLAYGROUND

**NOW OPEN**

Fireproof, 200 Rooms, each with Private Bath  
 Exceptional Appointments, Service and Cuisine

**18 and 9 Hole Golf Courses**  
**Bathing in Ocean or Pool**

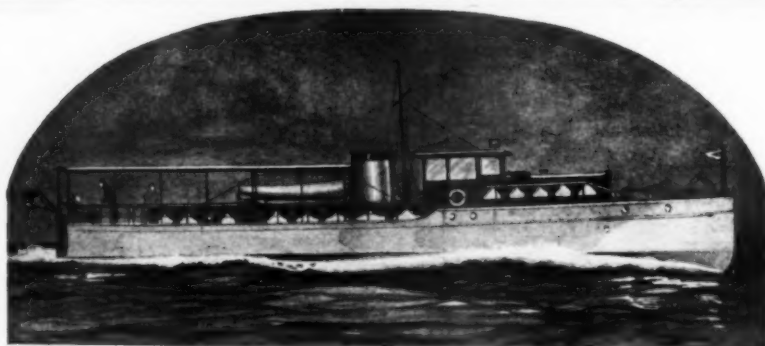
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UNUSUALLY ATTRACTIVE FURNISHED  
 BUNGALOWS

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**C. S. KROM** - - - - **Manager**





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Cruising Yacht  
Owner, Mr. Phineas  
W. Sprague, Boston

## The Densmore Standardized Cruising Yacht

These boats can be seen at our yard completed and in process

Never before has a standardized yacht of this size, quality or completeness been built. In materials, workmanship, finish and equipment it is the last word in yacht building—the finest that money and experience can produce.

For the first time the purchaser of a large high grade cruising yacht can buy a boat completely equipped, built to a design of demonstrated merit and embodying every feature that contributes to comfort, safety and pleasure.

To those interested we request the opportunity to submit plans and specifications. We will be pleased to estimate on any other boat or plans by your own Naval Architect.

**J. M. DENSMORE CO.**

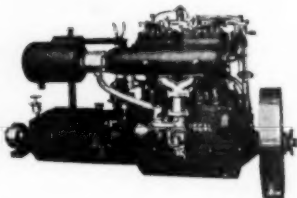
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# REGAL

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FOR twenty years have led the field in the design and construction of reliable and economical power plants. Sizes 2 h.p. to 50 h.p. One to four cylinder. Built to operate with gasoline distillate or kerosene.



**REGALITE**—the new Electric Lighting Plant, 2 h.p. air cooled motor,  $\frac{3}{4}$  k.w. generator. Write for information.

**REGAL GASOLINE ENGINE CO.**

74 West Pearl Street

COLDWATER, MICH.

## Yard and Shop

(Continued from page 50)

### How to Remove Varnish

Varnish removers are sometimes unsatisfactory for the reason that the film of varnish, after being softened, hardens so rapidly that it is impossible to remove it without first applying more remover or gouging into the wood with a putty knife. E. Z. Varnish Remover, made by the Bissell Varnish Company, cuts deep, cuts quickly and the loosened film of varnish remains soft for hours, seeming to be converted into a soft slush which may be wiped from the surface of the wood with a piece of burlap, a handful of excelsior or of curled hair. Another remarkable feature of this remover is that it has no unpleasant odor, and instead of being a skin remover is more like a complexion cream. It has sufficient body so that it stays put on vertical surfaces, and it does not irritate the skin. It contains no solvent which is injurious to the health of the user and leaves no film of grease on the wood which cannot be removed by a light washing with gasoline. It would seem as if it set a new standard for material used for cleaning off old work.

### Request for Catalogues

Consul Charles H. Albrecht writes from Reval, Esthonia, that he is anxious to receive, for use in connection with the extension of American trade, catalogues and price lists of American firms interested in export trade. Such trade journals as American publishers are willing to forward gratuitously to the consulate will also be welcomed.

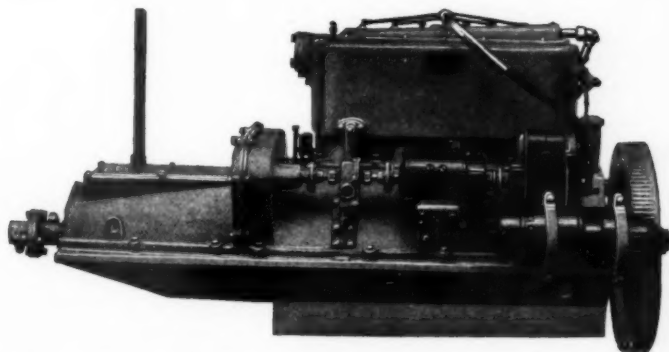
### Modern Refrigeration

For high-class yacht installations the annoyance of continuously icing a refrigerator can be eliminated by using the Frigidaire method of cooling. This is a mechanical refrigeration system which can be readily operated from the auxiliary electric sets which are now so popular. Captain Dean, of the Dean Engineering Company, tells us that the 3-K.W. Genco lighting plant which he specializes in has sufficient capacity to operate the Frigidaire machine as well as operate many lamps, searchlights, electric bilge pumps, and other accessories. A large storage battery installation can also be kept full by this machine. Every yacht or houseboat can be provided with the comforts of electricity by the installation of these devices.

# THEY DO WELL EVERYWHERE



28 Ft. V-Bottom Runabout equipped with Model LN-42 Fay & Bowen engine, owned by Mr. D. Hulsinga, of Yselmonde, Holland



Fay & Bowen Model LN-42 four-cylinder  $4\frac{1}{4} \times 5\frac{1}{2}$  with electric starter

## Fay & Bowen Engine Company

104 Lake Street

GENEVA, N. Y.

U. S. A.

NEW YORK: 44 Third Ave., at 10th St., Sutter Bros., Representatives.

PHILADELPHIA: 116 Walnut St., Marine Equipment & Supply Co., Representatives.

BOSTON: 84 Atlantic Ave., Gray-Aldrich Co., Representatives.



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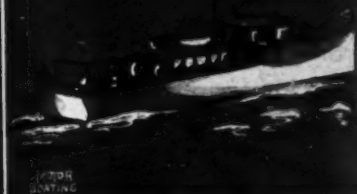
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The Backbone of the Finest Automotive Engines



**WYMAN — GORDON**

*The CRANKSHAFT MAKERS*

WORCESTER, MASS. CLEVELAND, OHIO.  
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## Rainbow Won the Fisher Trophy because Rainbow Conquered *Vibration*



"Rainbow," owned by Mr. Harry Greening,  
Winner of Fisher Trophy Races, Detroit.

Read What Mr. Greening writes:

"I must admit that the balancing on the crankshaft and the flywheel of the engine on the motor which I used in the 'Rainbow' was an excellent piece of work. Everyone who has ridden in 'Rainbow' remarks on the *absolute absence* of vibration. She won the Fisher Trophy races this year, and I must admit that the engine ran magnificently and absolutely without tremor."

H. B. GREENING.



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**T**HERE is only one way to conquer Vibration. That way is to balance the crankshaft so accurately that it simply "floats" in its bearing.

Then every bit of motor power is available to propel the boat.

There is only one way to secure absolutely perfect balance in a crankshaft—that is by means of an NWA Balancing Machine.

Every Motor Manufacturer attempts to balance his crankshafts. No other method equals the NWA Balancing Machine in accuracy, or in perfection of results produced.

*Insist that your new motor shall be properly balanced. Let us explain the advantages.*

# Universal

## MARINE MOTOR

### *Dependable as the Tide*

Specialization in building one type of marine motor has developed unusual skill in every department of production. The Universal 9-12 H.P. motor has long been recognized all over the world as a reliable power plant for boats of any type up to 30 ft. Its smooth, masterful delivery of power has made it the chosen favorite of experienced boatmen.

The Universal has been so perfected as to become a standard type. There are no costly yearly changes of models to needlessly increase the price of the Universal motor.

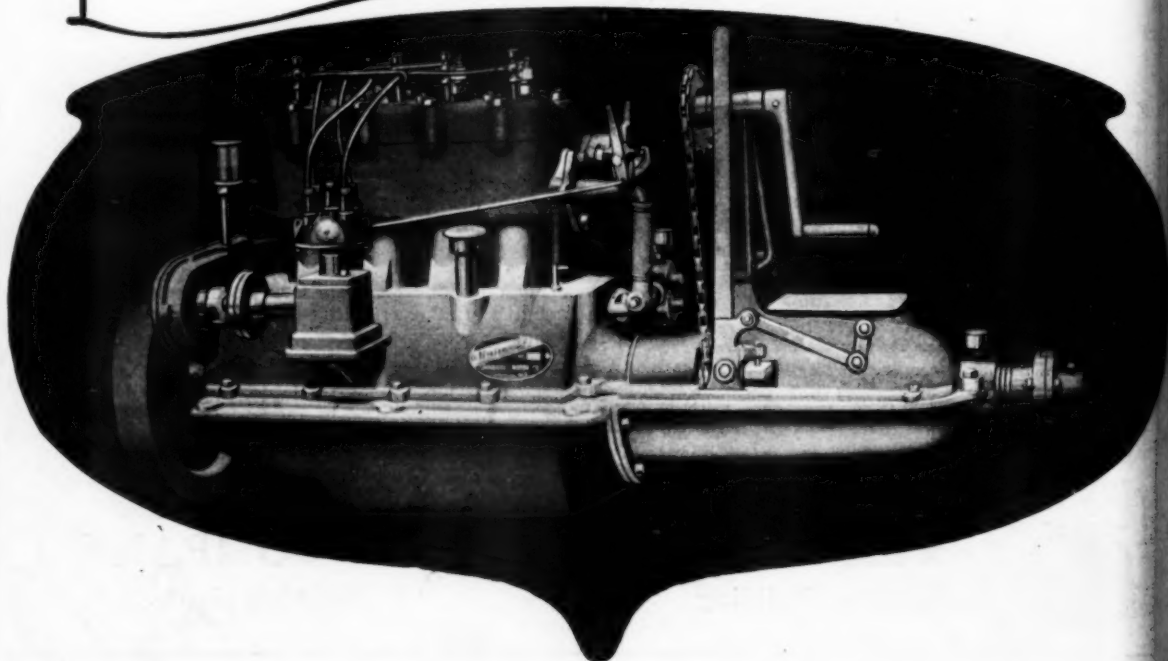
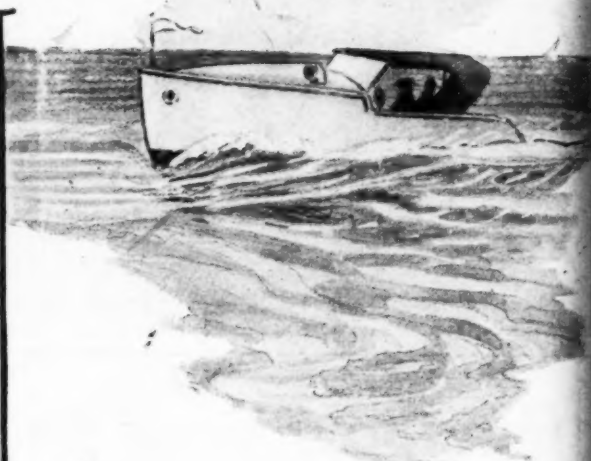
*The Universal 4 K.W. Generating Set furnishes steady, flickerless electric light and is as popular as the Universal Motor. It is widely used for lighting boats and boathouses, summer camps and homes.*

Write for the Universal Catalog.

**UNIVERSAL MOTOR CO.**

Oshkosh

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